US Army Corps
of Engineers
Baltimore District

PROJECT SPECIFICATIONS

POPLAR ISLAND HABITAT, RESTORATION PROJECT, CELL 3D WETLAND PLANTING

TALBOT COUNTY, MARYLAND

REQUEST FOR PROPOSAL: **W912DR-04-R-0059**

CONTRACT NO.

DATE: **AUG 03, 2004**

TABLE OF CONTENTS

SECTION 01010

SPECIAL CLAUSES

1. COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK: The Contractor will be required to commence work under this contract within 10 calendar days after the date of receipt by him of Notice to Proceed (NTP), to prosecute said work diligently and to complete the entire work ready for use not later than 400 calendar days. The time stated for completion shall include final clean-up of the premises.

2. PHYSICAL DATA: Information and data furnished or referred to below are furnished for information only and it is expressly understood that the Government will not be responsible for any interpretation or conclusion drawn therefore by the Contractor. (CENAB-EN 1984 APR)

2.1 Omitted

2.2 Weather Conditions: Complete weather records and reports may be obtained from the U.S. Weather Bureau. The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions during the construction period. The site of work is exposed, and suspension of work may at times be necessary during storm periods. The Contractor should anticipate the possible infrequent approach of tropical and subtropical storm systems, including hurricanes between JUN 01 and DEC 01. The Contractor should anticipate possible ice conditions at the work site from December through March. The Contractor should determine the effect that currents and wave action will have on construction operations. The mean tide level is 0.9 feet above MLLW, the mean tidal range is 1.2 feet, and spring tidal range is 1.8 feet, with greater fluctuations occurring during storm periods.

2.3 Transportation Facilities: The work site is accessible by water only. The Contractor shall make his own investigation of transportation facilities in the vicinity of the work.

2.4 Vessel Traffic: Vessel traffic in the immediate vicinity of the work consists of commercial fishing and recreational vessels. The site is located near the main ship channel in the Chesapeake Bay and large commercial vessels, tugs, barges, etc. pass within one to two miles of the site. In addition, for extended periods during this contract the Corps of Engineers, under separate contract, will be placing dredged material in the adjacent containment cells. The work will likely consist of several barges a day entering and leaving the existing access channel. The access channel and turning basin must be kept clear and passable during these periods.

2.5 Shellfish Areas: Shellfish areas, including oyster bars and softshell clam beds, exist adjacent to the construction site as shown on the drawings. Towing operations shall be conducted in such a manner as to avoid possible damage to these grounds. The Contractor shall not conduct towing operations in any shellfish or crabbing areas without obtaining approval from the Maryland Department of Natural Resources. Any approved towing routes shall be properly marked with aids to navigation and coordinated with the Maryland Waterman's Association. The Contractor is cautioned to exercise due care and precaution in any other operations attendant with towing (such as the construction of trestles; the movement and anchoring of barges, vessels, or other equipment; the placing, moving and dragging of anchors) to prevent damage to all oyster, soft shell clam and crabbing grounds. The Contractor shall hold and save harmless the United States, its officers and employees, from all claims that may arise resulting from the Contractor's negligence in

connection with the work to be performed under the contract, or from noncompliance by the Contractor with the provisions of the contract drawings and specifications and/or the instructions of the Contracting Officer.

2.6 SAFETY SIGN: (JUN 1994) A safety sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements of EP 310-1-6. The sign shall be erected as soon as possible. The data required by the sign shall be corrected daily, with light colored metallic or non-metallic numerals. Numerals, including mounting hardware, shall be subject to the approval of the Contracting Officer. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (NAB)

2.7: UTILITIES:

2.7.1 Availability of Utilities Including Lavatory Facilities: (JUN 1980: It shall be the responsibility of the Contractor to provide all utilities he may require during the entire life of the contract. He shall make his own investigation and determinations as to the availability and adequacy of utilities for his use for construction purposes and domestic consumption. He shall install and maintain all necessary supply lines, connections, piping, and meters if required, but only at such locations and in such manner as approved by the Contracting Officer. Before final acceptance of work under this contract, all temporary supply lines, connections and piping installed by the Contractor shall be removed by him in a manner satisfactory to the Contracting Officer. (CENAB)

3. LAYOUT OF WORK:

3.1. Prior to planting the Contractor shall layout both his and the volunteer planting areas as shown on the drawings and as directed by the Contracting Officer. .The Contractor shall maintain, preserve, repair or replace, at his own expense, any gages or location markers that are lost, damaged or destroyed for any reason subsequent to their initial establishment by the Contracting Officer until authorized to remove them. The Contractor may, at his option, establish offset stakes, back-up stakes, and gages to be utilized in re-establishing any baseline, ranges and gages that are lost, damaged or destroyed. The contract completion time will not be increased due to work delays that result from the failure of the Contractor to maintain, repair or replace baselines, ranges and gages.

3.2 The Contractor shall give the Contracting Officer adequate advance notice of the commencement of work. Notice shall be furnished at least 15 days prior to initiation of any work at the site.

3.3 Datum and Bench Marks:

3.3.1 The vertical plane of reference for the project is mean lower low water (MLLW) for the 1960 to 1978 tidal epoch, as established by the National Ocean Survey based on water level data and National Geodetic Vertical Datum (NGVD) obtained from the tidal bench mark (No. 8572770) located at Matapeake, Maryland. Horizontal and vertical control data is shown on the drawings. Additional horizontal and vertical control data will be provided to the Contractor on request. This request should be made to the Contracting Officer’s Representative on-site.

3.3.2 The horizontal reference datum for the project is North American Datum of 1983 (NAD 83) and the Maryland State Plane Coordinate System.

4. SIGNAL LIGHTS:

4.1 The Contractor shall display lights and conduct his operations in accordance with the General Regulations of the Department of the Army and of the U.S. Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65-feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2A, Navigation Rules: International-Inland (Comdtinst M16672.2A), or 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable. (DAEN-PRP-1984 JUL)

5. CONTRACTOR QUALITY CONTROL: (SEE SECTION 01451)

6. PHOTOGRAPHIC RECORD OF CONSTRUCTION: The Contractor shall provide photographic coverage under the contract. These services shall be for ten commercial grade color photographs every 14 calendar days from the beginning of the planting operations until acceptance of the completed work. These photographs shall be in 8" x 10" size and shall be taken at intervals and at the place designated by the Contracting Officer. Negatives from all of the above photographs shall be given to and become the property of the Government.

7. SAFETY:

7.1. General: The Contractor shall comply with all applicable requirements of Federal State and local laws, rules, and regulations, and the following:

a. 29 CFR 1910

b. 29 CFR 1926

c. 29 CFR 1926 - SUBPART V, tagout and lockout procedures

d. COE "Safety and Health Requirements Manual, EM 385-1-1, 03 NOV 03."

e. Contract Clause "FAR 52.236-13, Accident Prevention"

7.2. Safety Manager: The Contractor shall provide an individual at the site of work, whose duties are to control compliance with safety requirements of this contract and carry out the provisions of the approved accident prevention plan. The safety manager must be competent and familiar with the requirements of EM 385-1-1. The Contractor shall submit the name and qualifications of the Safety Manager to the Contracting Officer.

7.2.1 Safety inspections of the work sites, material and equipment shall be performed daily. Identified safety and occupational health deficiencies and corrective measures shall be recorded in the Contractor's QC report.

7.2.2 A "Master Deficiency List" identifying all safety deficiencies observed by the QC staff and/or the Contracting Officer will be maintained by the Contractor. The information maintained in the list shall include the following at a minimum:

(a) Description of the deficiency and the corresponding EM 385-1-1 paragraph number.

(b) Date the deficiency was noted and the identifying party.

(c) Corrective action taken and the date accomplished.

7.2.3 The updated "Master Deficiency List" shall be submitted to the CO biweekly. All safety deficiencies will be corrected promptly. Failure to promptly correct safety deficiencies will result in retainage of funds or complete withholding of partial payments.

7.3 Accident Prevention and Reporting:

7.3.1 Accident Prevention Plan: The Contractor shall submit his Accident Prevention Plan and Phase Hazard Analysis Plan for review and approval a minimum of 5 days prior to commencing work at the job site.

7.3.2 ENG Form 3394: Section 01.D. of EM 385-1-1 will be followed and the Contract Clause entitled "Accident Prevention" is amended as follows: The prime Contractor will report on ENG Form 3394, supplied by the Contracting Officer, all injuries to his employees and employees of subcontractors that require examination and treatment by a doctor and all damage to property and/or equipment in excess of $1,000.00 per incident. Verbal notification of such accidents will be made to the Contracting Officer within 24 hours. A written report on the above noted form will be submitted to the Contracting Officer's representative within 72 hours following such accidents.

7.4 Head Protection (Hard Hat): The entire work site under this contract is designated as a hard hat area. The Contractor shall post the area in accordance with the requirements of section 05.D, EM 385-1-1, and shall insure that all prime and subcontractor personnel, vendors and visitors utilize hard hats while within the project area.

7.5 Oil Transfer Operations: The Contractor shall assure that oil transfer operations to or from his plant comply with all federal, state, and municipal laws, codes and regulations. Particular attention is directed to 33 CFR Subchapter O, POLLUTION. The Contractor shall incorporate in his accident prevention program, submitted in compliance with Contract Clause ACCIDENT PREVENTION, sufficient information to demonstrate that all fuel transfers will be made in accordance with 33 CFR 156 and any other applicable laws, codes and regulations. (CENAB-EN 1984 APR)

7.6 Trailers: All covered trailers, regardless of their use, shall be anchored after spotting and blocking up by installation of four 8-way expanding anchors with rods and cable, one under each of the four corners of the trailer. The anchors shall be not less than 3 feet under the surface of the ground with anchor rod extending to the ground surface. The trailer shall be securely anchored down by installation to each anchor of a 1/2- inch cable attached to the longitudinal frame member of the trailer by passing the cable over the frame member or to an eyebolt fastened to the frame, and then tightened by use of a turnbuckle or other approved means as necessary to prevent movement. Details of proposed method of anchorage shall be submitted for approval.

8. FUEL USAGE: The Contractor shall furnish the Contracting Officer a report, to be received on or before the last day of the calendar month, listing the totals of fuels consumed by the construction equipment, and

supporting vessels. The report shall list the quantities of different fuels separately. The report shall cover the period from the 25th of the preceding month to the 25th of the current month.

9. ENVIRONMENTAL LITIGATION (1974 NOV OCE)

a. If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of this contract. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

b. The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment. (CENAB)

10. WORK ON SUNDAYS, HOLIDAYS, AND NIGHTS: When the Contractor elects to work on Sundays, holidays, or nights, notice of his intention to do so shall be given to the Contracting Officer within a reasonable time in advance thereof. For the purpose of safety and inspection during night operations the Contractor shall provide, at his expense, lighting in accordance with Paragraph 10.1, below.

10.1 For night operations the Contractor shall provide and maintain, at his expense, two light towers equipped with a 3 KW generator (minimum) at the dredged material placement site. Each light tower shall have metal halide bulbs (1000 watt) or equivalent, capable of giving off a minimum of 200,000 lumens. No work shall be permitted after dusk without the aid of both light towers.

11. RADIO COMMUNICATION: The Contractor is responsible and required to provide any and all equipment necessary to maintain 24-hour oral communication between the equipment operators at the work site, Quality Control System Manager, Contractor personnel at the work site, and Corps of Engineers' personnel at the construction site. The Contractor is responsible for any and all circumstances not conforming to the plans and specifications resulting from the inadequate operation of the equipment.

12. PROGRESS SCHEDULING AND REPORTING: (JUN 1975) The Contractor, shall within five days, or as otherwise determined by the Contracting Officer, after date of commencement of work, submit for approval a practicable progress schedule showing the manner in which he intends to prosecute the work. NADB Form 1153 ("Physical Construction Progress Chart") will be furnished by the Contracting Officer for use in preparing this schedule. If a Contractor form is used, the same information as shown in the NADB Form 1153 shall be provided. Preparation and updating of the schedule shall be as follows:

12.1 Preparation: The progress schedule shall be prepared in the form of time-scaled summary network diagram graphically indicating the sequence proposed to accomplish each work activity or operation, and appropriate interdependencies between the various activities. The chart shall show the starting and completion dates of all activities on a linear horizontal time scale beginning with the dates of Notice to Proceed and indicating calendar days to completion. Each activity in the construction shall be represented by an arrow and shall have a beginning and ending node (event). The entire project shall have only one beginning node and one ending node. The arrangement of arrows shall be such that they flow from left to right. Each arrow representing an activity shall be annotated to show the activity description, duration and cost. The Contractor shall indicate on the chart the important work activities that are critical to the timely overall completion of the project. Key dates for important features or portions of work features are milestone dates and shall be so indicated on the chart. Based on this chart, the Contractor shall prepare an earnings-time curve ("S" Curve) showing the rate of progress in terms of money and percent completion. Schedule progress may not include the value of materials or equipment delivered to the job site but not yet incorporated into the work. This schedule shall be the medium through which the timeliness of the Contractor's construction effort is appraised.

12.2 Updating: The Contractor shall update the schedule by entering actual progress thereon at monthly intervals. The status of activities completed or partially completed as of the end of each period shall be shown, as well as the percentage of work completed. In computing actual progress, the value of material and equipment on site but not incorporated into the work may not be considered. When changes are authorized that result in contract time extensions, the Contractor shall submit a modified chart for approval by the Contracting Officer. The Contract Clause entitled "SCHEDULES FOR CONSTRUCTION CONTRACTS" with reference to overtime, extra shifts, etc., may be invoked when the Contractor fails to start or complete work activities or portions of same by the dates indicated on the approved progress chart, or when it is apparent to the Contracting Officer from the Contractor's actual progress that these dates will not be met. (CENAB-CO-E)

13. CONTINUITY OF WORK: No payment will be made for work done in any area designated by the Contracting Officer until the area has been completed and surveyed. Plantings beyond the extent shown on the drawings will not be paid for unless previously approved by the Contracting Officer.

14. MISPLACED MATERIAL: Should the Contractor during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant machinery, or appliance, which in the opinion of the Contracting Officer may be dangerous to or obstruct navigation or operations, or harm the environment, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Contracting Officer or inspector, and when required shall mark or buoy such obstructions until the same are removed. Should he refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the Contracting Officer, and the cost of such removal may be deducted from any money due or to become due to the Contractor, or may be recovered under his bond. The liability of the Contractor for the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Section 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 410 et seq.). (DOD FAR SUPPL 52.236-7006 JAN 1965)

15. NEGOTIATED MODIFICATIONS: (OCT 84) Whenever profit is negotiated as an element of price for any modification to this contract with either prime or subcontractor, a reasonable profit shall be negotiated or determined by using the OCE Weighted Guidelines method outlined in EFARS 15.902. (Sugg. CENAB 84-232)

16. GOVERNMENT QUALITY ASSURANCE: The Contractor shall be required:

(a) To furnish, on the request of the Contracting Officer or any inspector, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew as may be reasonably necessary in inspecting and supervising the work.

(b) The Contractor shall maintain a log on each vessel transporting personnel between the shore and the project work site(s). The Contractor shall be responsible for recording each trip between a shore station and the project site. The log shall include date, time, and names of all transported persons not directly employed by the Contractor (including all Corps personnel and site visitors), and the name of the operator and crew of the transporting vessel. The Contractor shall submit copies of the logs to the Contracting Officer at the end of each week during construction.

(c) The Contractor shall provide for exclusive use by the Contracting Officer and any Government inspector a complete set of all publications, standards, methods, and other printed materials cited (directly or indirectly) in these specifications, USACE publications excepted.

16.1. The entire cost to the Contractor for furnishing, equipping, and maintaining the foregoing accommodations shall be included in the contract price. If the Contractor fails to meet these requirements, the facilities referred to above will be secured by the Contracting Officer, and the cost thereof will be deducted from payments to the Contractor.

17. FINAL EXAMINATION AND ACCEPTANCE:

(a) As soon as practicable after the completion of the entire work or any section thereof (if the work is divided into sections) and in the opinion of the Contracting Officer will not be subject to damage by further operations under the contract, such work will be thoroughly examined by the Contracting Officer for final acceptance.

(b) Final acceptance of the whole or a part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

18. ENVIRONMENTAL PROTECTION

18.1 General: The Contractor shall furnish all labor, materials and equipment, to perform all work required for the prevention of environmental pollution during, and as the result of, construction/planting operations under this contract except for those measures set forth in the Technical Clauses of these specifications. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; or affect other species

of importance to man. The control of environmental pollution requires consideration of air, water, and land.

18.2 Applicable Regulations: The Contractor and his subcontractors in the performance of this contract, shall comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement in effect on the date of this solicitation, as well as the specific requirements stated elsewhere in the contract specifications. The Contractor shall operate all equipment in a manner and at a rate so as to not cause turbidity in Maryland waters of the Chesapeake Bay outside of the immediate mixing zone at the project site to exceed State water quality criteria. See Appendix A: State of Maryland, Department of the Environment Water Quality Certificate. The USACE, Baltimore District will conduct the required water quality compliance monitoring during construction.

18.3 Notification: The Contracting Officer or his authorized representative will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer or his authorized representative may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of time lost due to any such stop order shall be made subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

18.4 Subcontractors: Compliance with the provisions for environmental protection by subcontractors shall be the responsibility of the Contractor.

18.5 Protection of Water Resources: The Contractor shall not pollute streams, lakes, reservoirs, rivers or bays with fuels, oils, bitumens, calcium chloride, acid construction wastes, or other harmful materials. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project area. The Contractor shall take special positive protective measures to prevent spillage of potential pollutant materials such as fuel, emulsion materials, chemicals etc., from storage containers or equipment into public waters. Such positive protective measures may include, but not limited to the following:

(a) A berm enclosure of sufficient capacity to contain such materials.

(b) Security measures to prevent acts of vandalism which could result in spillage of such materials (fences, guards,etc.).

(c) Storage of such materials in an area where the terrain would preclude leakage into public waters.

(d) Utilization of secure Government storage areas if the Contracting Officer indicates such space is available. No storage past immediate needs (2 days) without the consent of the Contracting Officer or his authorized representative.

18.6 Burning: Burning shall be in compliance with Federal, State, and local laws. The Contractor shall be responsible for obtaining all required burning permit approvals.

18.7 Dust Control: The Contractor shall maintain all work areas free from dust which would contribute to air pollution. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, where used, must be repeated at such interval as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

18.8 Protection of Land Resources:

18.8.1 General: It is intended that land resources within the project boundaries and outside the limits of the permanent work performed under this contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor shall confine his construction activities to areas defined by the plans and specifications or to be cleared for other operations. The following additional requirements are intended to supplement and clarify the requirements of the CONTRACT CLAUSES.

18.8.2 Jefferson Island and Coaches Island are private property and are not within the limits of construction for this project. The Contractor shall confine his activities to the limits of construction and shall not trespass upon Jefferson Island or upon Coaches Island at any time.

18.9 Environmental Time of the Year Restrictions: The Contractor shall comply with Environmental Restrictions indicated on the drawings and in accordance with the attached “PIERP ENVIRONMENTAL TIME OF THE YEAR RESTRICTIONS/RESOURCE MANAGEMENT INFORMATION” Table, located at the end of this section.

18.10 Location of Storage and Service Facilities: The location on Government property of the Contractor's storage and service facilities, required temporarily in the performance of the work, shall be in the areas designated on the drawings.

18.11 Temporary Excavation and Embankments: If the Contractor proposes to construct temporary roads, embankments, or excavations for plant and/or work areas, he shall submit a plan for approval prior to scheduled start of such temporary work. The Contractor shall restore any disturbed areas to their original condition at no expense to the Government.

18.12 Waste Disposal: Placement of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., in areas adjacent to the work site shall not be permitted. If waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as directed by the Contracting Officer, replaced with suitable fill material. Compacted and planted as required to re-establish vegetation.

18.13 Toilet Facilities: The Contractor shall provide on-shore toilet facilities, in accordance with paragraph 02.C, TOILETS, of EM 385-1-1, at the construction site. Dredge plant toilet facilities may not be substituted for on-shore facility requirements.

18.14 Corrective Action: The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply

promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

18.15 Measurement and Payment: No separate measurement and payment will be made for the work performed in Environmental Protection, specified herein, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor and shall be included in the overall cost of the work.

19. SUBCONTRACTS: In accordance with Section 00100, clause 52.222-23, NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY, the Contractor shall, within 10 working days following award of any construction subcontract by the Contractor or a Subcontractor, deliver to the Contracting Officer or his authorized representative a completed DD form 1566.

20. CONTRACTOR SUBMITTAL PROCEDURES: Submittals shall be in accordance with specification Section: 01330, SUBMITTAL PROCEDURES.

21. CONTRACTOR'S RESPONSIBILITY: (ECI, APP.A) The Contractor shall be responsible for insuring that his employees strictly comply with all Federal, State, and municipal laws that may apply to operations under the contract; and it is understood and agreed that the Contractor assumes full responsibility for the safety of his employees, plant, and materials, and for any damage or injury done by or to them from any source or cause, except damage caused to the plant or equipment by acts of the Government, its officers, agents or employees, in which event such damages will be the responsibility of the Government in accordance with applicable Federal laws. For the purpose of this clause, the terms "officers, agents or employees" of the Government shall not include persons who are employed by the Contractor and whose services have been furnished to the Government pursuant to this or any other contract.

21.1 Responsibility For Contractor Plant and Government Property: The Government will not be responsible for the attendant plant, any Government property at the attendant plant, or any accidental damage thereto during the period of the contract. The Contractor shall release the Government and its officers, agents, and employees from all responsibility for damages to dock facilities, submerged and aerial crossings, bridges, moored vessels, or other damages ordinarily covered by fire and marine insurance.

21.2 Warranty: The Contractor warrants to the Government the quiet and peaceable use of the aforesaid property, and in case of any disturbance, by suit or otherwise, will defend the same free of charge to the Government in or before the proper State or United States courts.

21.3 Delays: If the Contractor refuses or fails to make delivery of the property within the time specified or any extension thereof, as provided in the solicitation, or to maintain the property in serviceable condition and diligently and competently to conduct the specified operations, the Government may, by written notice terminate the right of the Contractor to proceed with delivery or with further performance under the contract or such parts or parts thereof affected by the contract or otherwise and the Contractor shall be liable to the Government for any excess cost occasioned thereby.

21.4 Disclaimer: The Contractor shall hold and save harmless the United States, its officers, agents, and employees, from all claims that may

arise resulting from the Contractor's negligence in connection with the work to be performed under the contract, or from noncompliance by the Contractor with the provisions of the contract, contract drawings, and specifications and/or the instructions of the Contracting Officer or his authorized representative.

22. ORDER OF WORK AND COORDINATION WITH OTHER CONTRACTORS: For extended periods during this contract, the Corps of Engineers may be administering other contracts for the purpose of placing dredged material within the adjacent containment cells. At some time during this contract, a meeting may be held with all Contractor’s representatives and the Contracting Officer to develop a work coordination plan. In case of conflict over the use of an area, the decision of the Contracting officer will control. The Maryland Port Administration has contracted with the Maryland Environmental Service for the operation and maintenance of the Poplar Island facility and will be present throughout the entire contract.

22.1 Dredging: The dredging work will consist of several barges daily entering and leaving the existing access channel. The access channel and turning basin must be kept clear and passable at all times during these periods. With the exception of cell 3D, all cells may receive dredged material, and it will be necessary to coordinate with the dredging contractor to accommodate placement and movement of dredging discharge pipes.

22.2 Volunteer Planting: The Contractor shall fully coordinate and cooperate with the Representative from the National Aquarium in Baltimore, which will be administering the volunteer planting. The volunteer planting areas are shown on the Contract Drawings. The Contractor shall provide the following support to the National Aquarium for the volunteer planting:

(a) Attend all coordination meetings with the Government and National Aquarium necessary to fully coordinate the volunteer planting. The point of contact for the National Aquarium is Ms Angie Ashley at (410) 576-1508.

(b) The Contractor shall supply all plants, fertilizer, and all necessary materials for the goose exclosure fencing. The Contractor shall have all plants, fertilizer, and materials available for delivery to the site by the first day of the planting season as specified in Section 02931 LANDSCAPING FOR TERRESTRIAL AND TIDAL MARSH ZONES. The Contractor shall coordinate the time and location of deliveries to the satisfaction of the Government and the National Aquarium’s Representative.

(c) The Contractor shall anticipate three (3) separate deliveries of plants and materials. The Contractor shall include in his deliveries for the volunteer planting any and all equipment supplied by the National Aquarium (the Contractor should anticipate equipment such as dibble bars, fertilizer applicators, canopy sunshades, buckets, trowels, coolers, hand tools, tote boxes, etc.). The Contractor shall also demobilize the National Aquarium’s equipment and supplies from the island at the completion of the volunteer planting. The National Aquarium shall be responsible for transporting their own equipment and supplies (other than plants, fertilizer, and goose exclosure fencing materials supplied by the Contractor) to and from the barge land base.

(d) The Contractor shall stage plants in their appropriate tidal zones within Cell 3D as specified in Section 02931 LANDSCAPING FOR TERRESTRIAL AND TIDAL MARSH ZONES and keep staged plants sufficiently hydrated until the plants are formally accepted by the Government. The Contractor shall stage materials, equipment, and supplies in the volunteer staging area in a neat and orderly manner, as directed by the Contracting Officer.

(e) Immediately after each session of volunteer planting operations the Contractor shall remove all of the debris resulting from the volunteer planting and dispose of it off island in accordance with all local, state, and Federal regulations.

(f) The Contractor shall provide toilet facilities for the volunteers in accordance with Paragraph 18.13. The Contractor shall anticipate approximately 80 to 100 volunteers and staff daily, and that volunteer planting will be completed within two (2) to three (3) weeks during the planting season. These toilet facilities shall be located in the volunteer staging area shown on the Contract Drawings. The Contractor shall maintain and service toilet facilities, and remove them from the project site at the conclusion of the volunteer planting.

(g) Prior to planting operations, the Contractor shall lay out the volunteer planting areas as shown on the Contract Drawings and as directed by the Contracting Officer. The Contractor shall adequately maintain all stakes, and promptly replace any damaged or disturbed stakes. Any final site preparation required prior to pl.anting shall be the responsibility of the Contractor.

(h) The National Aquarium will transport all volunteers to and from the island during the planting operations.

23. ESCROW: The amount of funds shown in the clause CONTINUING CONTRACTS of the Solicitation represents the total Federal and Non-Federal Sponsor funds scheduled for the work during the current fiscal year. The Non-Federal Sponsor’s total contribution for this fiscal year will be placed in an escrow account prior to award of the contract and subsequent fiscal year contributions will be placed in the escrow in annual installments. The Government will withdraw these funds on a monthly basis in advance of performance of the work. The amounts withdrawn will be based on estimates of both Federal and Non-Federal Sponsor funds necessary to pay for the work to be performed by the Contractor during each successive month. The Federal Government’s obligation with respect to the Non-Federal Sponsor’s funds is limited to the amount of Non-Federal funds actually withdrawn from the escrow account and placed on deposit in the Government’s Federal Reserve Bank Account.

END OF SECTION

PHYSICAL CONSTRUCTION PROGRESS CHART

CONTRACTOR	PROJECT	CONTRACT DESCRIPTION	SUBMITTED FOR APPROVAL	DATE	DATE NOTICE TO PROCEED RECEIVED
CONTRACT NUMBER	LOCATION		APPROVAL RECOMMENDED	DATE	STARTING DATE
			APPROVED	DATE	COMPLETION DATE

MILESTONE DATES

PRINCIPAL CONSTRUCTION FEATURE	EST. COST	DURATION CAL. DAYS

NADB Form 1153
27 Mar. 73

PIERP ENVIRONMENTAL TIME OF YEAR RESTRICTIONS/RESOURCE MANAGEMENT INFORMATION

Name/ Coordination	Restrictions	Life History Information
Bald Eagle *Haliaeetus leucocephalus* MDNR & USFWS Glenn Therres DNR Wildlife and Heritage 410-260-8572 Jason Miller USFWS 410-573-4522 Craig Koppie USFWS 410-573-4534	Three zones of activity limitation. **Zone 1:** Extends 330 feet from nest. Year-round restrictions include any habitat changes such as timber cutting, land clearing, building and road construction. Dec 15-June15-no human activities. June 16 – Dec. 14 - limited activity, restricted hunting & off road vehicles. **Zone 2:** Extends 660 feet from nest. Restrictions include major habitat changes such as clear cutting, land clearing, building and road construction. Dec. 15-June 15 - no human activities, although some activities are allowed if researchers find that the nesting eagles are tolerant of it. June 16 – Dec. 14, activities such as hunting, fishing, hiking, farming are possible. Aug 16-Nov 16 - timber thinning & maint., buildings and road maintenance is possible. **Zone 3:** ¼ mile radius around nest. Most activities are possible, but management should include protection of roosts & feeding sites in this area. Dec. 15-June 15– restrictions on timber cutting, land clearing, building, road & trail construction	The Bald Eagle is the only eagle unique to North America. Male Bald Eagles average 0.91 m from head to tail, have a mass of 3.18- 4.5 kg, and a wing span of about 2 m. Females are typically larger, reaching a mass of up to 6.35 kg with wing spans of 2.44 m. Eagles are thought to live more than 30 years in the wild. **Status at PIERP:** During data collection for the EIS, a bald eagle pair was observed nesting at Jefferson Island, although they fledged no young in 1995. By the time construction had begun in 1999, the pair had moved to Coaches Island after their original nest was lost in a storm. The nest at Coaches Island has fledged two young per year since 1999. **Breeding:** Shoreline of coasts, rivers and large lakes. One brood averaging 2 eggs. Monogamous, Male and Female both tend the nest. Nest is typically a platform nest used perennially. **Diet:** Largely made up of fish, also small mammals, waterfowl, seabirds, and carrion. **Conservation Status:** Federally Threatened species in Maryland. Recently delisted to threatened – will still require 5 years of monitoring and then protections will be continued under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the Lacey Act. **Comments:** The Eagle was adopted as the United States national emblem in 1782. Bald Eagle numbers in the lower 48 states are thought to have declined from between 25,000 - 75,000 nesting birds to fewer than 450 nesting pairs by the early 1960's. U.S. breeding population declined due to habitat destruction and degradation, illegal shooting, contamination of its food source and reproductive impairment from pesticides (notably DDT) and heavy metals. Currently- there are more than 6,000 adult Bald Eagle nesting pairs in the lower 48 states, of which an estimated 260 pair are in Maryland. Numerous studies have documented that most bald eagles will flush from the nest if disturbed by human presence. If the disturbance occurs frequently, nesting can fail and the adults may or may not nest again.

Name/ Coordination	Restrictions	Life History Information
American Oyster *Crassostrea virginica* MDNR, Chris Judy MDE Rick Ayella	Natural Oyster Bars 8-10, 8-11 and 11-3 Oysters have stages of spawning and stasis (minimal respiration and filtering activity) during their life cycle. From June 1 – September 30, hydraulic excavation is prohibited within 1500 feet of the oyster bars.	The American oyster is a commercially and ecologically important species to the Chesapeake Bay. **Status at PIERP:** There are three oyster bars in proximity to PIERP, NOB 8-10, NOB 8-11 and NOB 11-3. These bars have oyster populations, but at very low levels. These bars are, at best , minimally and sporadically commercially productive, due to some past plantings by DNR, as seen on NOB 8-10 in the last 5 years. **Breeding:** Oysters spawn when water temperatures reach 18-20 degrees C, typically in May-June and again in October around PIERP. Spawning may occur more than once per year. **General Information:** Disease, combined with over harvest has reduced the population significantly from the 1700's. The ability of American oysters to filter large volumes of Bay water is thought to have significantly affected water clarity in historic times. If that function is realized in the future, the hypothesis is that significant improvement of Chesapeake Bay water quality would be possible. **Conservation Status:** Natural Oyster Bars are designated by the Maryland Department of Natural Resources as a resource of special significance. Oyster recovery is a goal of the CB 2000 Agreement.
Least Tern, *Sterna antillarum* Glenn Therres DNR Wildlife and Heritage 410-260-8572 Dave Brinker 1-410-744-8939 Jason Miller USFWS 410-573-4522	Activity disturbs nesting terns, causing them to abandon their nests. The nests should be avoided and activity limited during nesting and fledging. DNR-designated SSPRA nesting zones limit activity between Apr 15-Jul 31. Created habitat areas at PIERP are not designated. No formal restrictions. Least tern typically nest in more isolated areas, from May-June. Activities that could result in a 'take' are required to be coordinated with USFWS, DNR.	Least tern are a shorebird whose habitat has become threatened due to development and human disturbance. **Status at PIERP–** Least tern nested at PIERP from May-July 2001, in several areas around Phase I and Phase II. **Appearance** - This 8 to 9 inch birds have a black "crown" on their head, a snowy whiter underside and forehead, grayish back and wings, orange legs, and a yellow bill with a black tip. **Habitat** - From late April to August, terns use barren to sparsely vegetated sandbars along shorelines. **Reproduction** - The terns nest in a shallow hole scraped in an open sandy area, gravelly patch, or exposed flat. The nest in small colonies. Chicks leave the nest only a few days after hatching, but the adults continue to care for them, leading them to shelter in nearby grasses and bringing them food. **General Information:** Terns hover over and dive into standing or flowing water to catch small fish. Regionally, they breed in isolated areas along the Chesapeake Bay. Winter home is unknown, but probably includes coastal areas of Central and South America. **Conservation Status:** State Listed – Threatened. Federal Migratory Bird Treaty Act- Listed.

Name/ Coordination	Restrictions	Life History Information
Osprey *Pandion haliaetus* Jason Miller USFWS 410-573-4522	No formal restrictions. Moving nests from inappropriate areas requires a federal permit from USFWS. Assistance from a federal agency is required to move the nest. Permits must be renewed annually. Prior to 'weaving' or sitting activities, sticks can be removed from inappropriate areas to inhibit nesting.	Osprey are large raptors that feed almost exclusively on fish. Osprey populations declined dramatically in the 20th century due primarily to effects of DDT. Populations in the Chesapeake Bay are now rising. **Status at PIERP:** Osprey are reported to have nested on the Poplar Island remnants until the loss of much of the trees as the islands eroded. With construction of Phase I and enclosure of several remnant islands, osprey again built nests, beginning in the spring of 2001. Up to 5 pair are now known to have nested in the newly created habitat. **Appearance**: Wingspan 4.5-6 ft. length 22-25 in. They are dark brown above, white below, have a white head with a prominent black eye stripe. Females usually have a dark spotted "necklace". **Habitat:** Found near water, they usually nest near the top of large trees but will nest on artificial structures such as power poles, channel markers or special "Osprey platforms". Almost exclusively a fish eater, Ospreys are noted for their feet first plunge into the water when catching fish. Special adaptations for fishing include a reversible front toe and "spicules" on the bottom of their feet for grasping slippery fish. After catching a fish the bird carries it in a head first orientation as it flies back to the nest. **Reproduction:** Ospreys build a bulky nest of sticks similar to eagle nests. In some places they nest in colonies, Ospreys lay 3-4 eggs which hatch in about 30 days. **Range:** Ospreys have a worldwide distribution being found at some time in their life cycle on every continent except Antarctica. **Conservation Status:** Federal Migratory Bird Treaty Act- Listed.
Common Tern *Sterna hirundo* Glenn Therres DNR Wildlife and Heritage 410-260-8572 Dave Brinker 1-410-744-8939 Jason Miller USFWS 410-573-4522	Avoid activity near nesting sites during the mid-May to late July nesting season. DNR-designated SSPRA nesting zones limit activity between Apr 15-Aug 15. Created habitat areas at PIERP are not designated. No formal restrictions. Activities that could result in a 'take' are required to be coordinated with USFWS, DNR.	**Status at PIERP–** Common tern have historically nested at PIERP. Nesting has continued through restoration. **Appearance** – Common tern are similar in appearance to Least tern, but slightly larger. A black cap, a pale gray back and wings, and a red-tipped black bill offset their white body. The tail is deeply forked **Habitat** - From late April to August, terns use barren to sparsely vegetated sandbars along shorelines. Common terns feed in a variety of ways, including capture of prey while in-flight or by diving to the water's surface. Prey items include small fish, shrimp, and insects. Pairs generally occupy and defend a feeding territory which may be more than 20 km away from the breeding colony **Reproduction** - The common tern is a colonial breeder that often associates with other gulls or terns. Nests are simple depressions in the sand or shallow cups of dead grass formed on beaches or open rocky areas. Typical clutch size is 2-3 eggs. One study found that 90% of terns observed had returned to the territory occupied the previous year. **Range**. Wide distribution in the Americas. Wintering occurs from Florida to southern South America **Conservation Status:** Federal Migratory Bird Treaty Act- Listed.

Name/ Coordination	Restrictions	Life History Information
Submerged Aquatic Vegetation **Sago Pondweed** **Widgeon Grass** **Horned Pondweed** NMFS Tim Goodger 410-226-5771	No excavation or dredging within 500 yards of SAV beds between April 1 and October 1 each year.	Creation of SAV habitat is a goal of the PIERP. In particular, Poplar Harbor is targeted for SAV restoration due to creation of more quiescent conditions. **Status at PIERP–** SAV were found in small patches around PIERP in 1995 during data collection. Small patches of SAV were found again in 2001 after construction of Phase I was complete. Small patches were found in the western 'wave shadow' of Jefferson Island, and just north of Coaches Island in Poplar Harbor. Annual monitoring will take place to document SAV. **Appearance** – Patches of darker vegetative growth in shallow waters. **Habitat** – Shallow, clear Bay waters of <1-3 m. **Conservation Status:** Chesapeake Bay 2000 Agreement has set SAV restoration goals for all Tier I waters, which includes Poplar Harbor.

Name/ Coordination	Restrictions	Life History Information
Double Crested Cormorant ***Phalacrocorax auritus*** Glenn Therres DNR Wildlife and Heritage 410-260-8572 Dave Brinker 1-410-744-8939 Jason Miller USFWS 410-573-4522	No formal restrictions at PIERP. Limited activity from April 1-Aug 15 applied to Jefferson Island area. Activities that could result in a 'take' are required to be coordinated with USFWS, DNR. Double crested cormorant, while native, are considered a nuisance species by some. Records should be kept of activities by the cormorants that may result in habitat destruction for other species.	**Status at PIERP–** Double-crested cormorants are reported to have nested on remnant islands at PIERP until around 1995. With continued erosion and loss of tree snags to the water, the colony moved to Jefferson Island, where they have apparently contributed to significant tree mortality on the northern side of Jefferson Island. **Appearance** – Large, dark waterbird with a long, hooked bill and long tail. Length: 27 inches Wingspan: 50 inches. The sexes are similar in appearance. Long, thin neck, gular area squared off and orange, extending straight down across throat, orange lores often perches with wings spread to dry them. **Habitat** – Wetlands and open water. Feeds on fish and some benthic invertebrates. A colonial breeder that may nest with other species, this species can be found either in coastal areas or freshwater areas located further inland. **Reproduction** – Nests are found on the ground, on cliffs, or in trees. Clutch of 3-4 eggs, incubates 25-29 days, fledges in 35-42 days. Adults nest once per season. **Range** – Breeds in Great Lakes region and along Atlantic coast of the U.S. **Conservation Status:** Federal Migratory Bird Treaty Act- Listed. Double-crested cormorants are considered by some to be a nuisance bird. Cormorants can affect other waterbird species either through direct competition for nests and nest-sites or by degradation of habitat (Wires et al. 2001). The presence of cormorants and their nests can defoliate trees from acidic guano within a few years, making them less attractive as nest sites for other species, especially those that prefer concealed, leafy areas in the sub-canopy for nesting. Eventually sub-canopy nesters such as black-crowned night-herons abandon these trees in favor of other sites with suitable vegetation. For this reason, some states have been granted depredation permits for control of cormorants in habitat areas where state- and federally-listed bird species may not be achieving their target population levels due to competition from the cormorants. Controls can include nest destruction, egg-oiling and adult control.

Name/ Coordination	Restrictions	Life History Information
Great Blue Heron, *Ardea herodeus* Glenn Therres DNR Wildlife and Heritage 410-260-8572 Dave Brinker 1-410-744-8939 Jason Miller USFWS 410-573-4522	Restricted areas set by DNR, USFWS limiting activity during nesting, fledging periods. Feb 15 – Jul 31 – Limited activities are allowed, with specific stipulations. Normal operational activities (light vehicle traffic, personnel access to spillways) are allowed within restricted areas on PIERP at all times of year. Construction, heavy equipment, earth-moving activities are not allowed during nesting season. Activity within restricted area such as wetland planting, volunteer activities are limited to 6 people at a time, no vehicles. Tours can be conducted, but no people should exit the buses in the restricted areas during the restricted time of year. Activity should be limited to days when air temperatures are less than 85^{o}F and greater than 65^{o}F, and not during periods of precipitation.	Great blue heron are large colonial nesters. Coaches Island has a large breeding population of great blue heron. **Status at PIERP–** Great blue heron have nested on Coaches Island for decades. At least 450 pair are known to nest, mostly on the southern side of Coaches Island. **Appearance** – Huge long-legged, long-necked wader. Long thick yellow bill, usually holds neck in an S-shape. Male and female have similar appearance. Height 38 inches, wingspan 70 inches. White crown and face Black plume extending from above and behind eye to beyond back of head. Brownish-buff neck with black-bordered white stripe down center of foreneck. Blue-gray back, wings and belly, black shoulder, shaggy neck and back plumes in alternate plumage. **Habitat** – Coastal wetlands, brackish marshes, inland lakes and rivers. **Reproduction** – Nesting occurs either in single-species or mixed colonies. Nests are usually formed in trees, but ground, rock, cliff edges, reeds or rushes may also be used. Typical clutch size is 3-7 eggs. Great blue herons are inclined to renest in the same area year after year. Old nests may be enlarged and reused Eggs can hatch as early as March at PIERP colony. **Feeding Habits** – Generalist. The GBH forages by walking slowly or standing motionless in water and striking at prey. This species rarely forages more than 15 to 20 km from its nesting grounds. Fishing requires shallow waters (up to 0.5 m) with a firm substrate. Main prey items are fish and amphibians, but will also take small mammals, reptiles, crustaceans, insects, and birds **Range -** The GBH breeds throughout the U.S. and winters as far north as New England and southern Alaska. **Conservation Status:** Federal Migratory Bird Treaty Act- Listed.

Name/ Coordination	Restrictions	Life History Information
Mixed Heronry **Snowy Egret** *Egretta thula* **Cattle Egret** *Bubulcus ibis* **Little Blue Heron**, *Ardea caerulea* Glenn Therres DNR Wildlife and Heritage 410-260-8572 Dave Brinker 1-410-744-8939	No formal restrictions. Similar to great blue heron. Feb 15 – Aug 15 – Limited activities are allowed, with specific stipulations	A mixed heronry indicates the presence of mixed species of colonial nesters. **Status at PIERP–** Little blue heron were found on PIERP during the data collection for the EIS in 1995/1996. Coaches Island may provide breeding habitat for little blue heron. Cattle egret and snowy egret have also been observed nesting on the habitat islands at PIERP. **Appearance:** Little Blue Heron are similar to great blue heron, without white crown, and smaller in size. Snowy egret are a smaller white heron, distinguished from the great egret by smaller size, black bill and yellow feet. Cattle egret are also a white heron (length 50 cm) with a stout yellow bill and in the breeding season with buff yellow-orange plumes on head, neck and back. **Habitat:** Heron nest in trees or shrubs. They are all primarily fish eaters, but will also eat invertebrates, benthic organisms, reptiles and amphibians. **Conservation Status:** Federal Migratory Bird Treaty Act- Listed.

Name/ Coordination	Restrictions	Life History Information
Diamondback terrapin, *Malaclemys terrapin* Howard King or Jim Uphoff DNR Fisheries 410-260-8304 Corps Researcher William Roosenburg 301-884-7467	No formal restrictions. Report sightings to MDDNR or Dr. Roosenburg. PIERP has elected to become a State Terrapin Station to assist in the conservation of terrapin breeding habitat.	The diamondback terrapin is the Maryland State Symbol. **Status at PIERP–** Diamondback terrapin tracks were found at Coaches Island in 1996 2001. Nesting has been observed inside Wetland Cell 5 in Summer 2002, and along the sandy beach remnant outside of Cells 1 and 3d. **Appearance:** The terrapin has a strong beak rather than teeth and is a predator. The carapace or top shell of the Maryland terrapin may be light brown, bluish gray or black. The plastron is yellow to olive in color. The outside of the top shell is covered with thin, shiny scales called scutes. The scutes on some *Malaclemys* have black concentric rings which earned this group the nickname "diamondback." The skin of terrapins is its "fingerprint" in that no two animals are alike. Black spots and dashed or curly lines create a unique design. Diamondbacks are strong climbers and have webbed feet enabling them to swim fast. How far they move throughout the Bay is unknown. Studies have shown that adult terrapins may remain in a rather small area for most of their life. Unlike the aggressive snapping turtle, the terrapin can be quite docile. **Habitat:** Lives and breeds in salt marshes and tidal tributaries. The only North American turtle that lives exclusively in brackish water. Prefers unpolluted tidal areas and therefore are good indicators of healthy wetland systems. May live as long as 50 years. Males mature at seven years at about a pound, when the plastron reaches about four inches. The plastron is the underside ridge running front to back. The female terrapin matures by twelve years old, weighs up to seven pounds and reach lengths of nine inches long. Water temperatures and food supply play a role in growth rates, in warmer waters terrapins stay active, feed longer, and hibernate less. **Breeding:** Mating occurs in May. Female terrapins store sperm and thus can produce fertilized eggs up to four years after mating. Light pink and leathery textured eggs, on average 13, are laid in nests during June and July on shore in sand or loam, then covered. Hatching occurs from August through October depending on temperatures. When the hatchlings emerge, they are an inch long and on their own. 1-3% of the eggs laid produce a hatchling, the survivorship of hatchlings in the wild is currently unknown but is believed to be low. Hatchlings are a favorite with herons. A late hatch may stay buried in the nest and hibernate, most of the adult terrapins also hibernate during winter **Conservation Status:** Not listed, although data is scarce on habitat and populations. There is a terrapin fisheries season in Maryland for commercial fishing. Studies are underway to determine whether this species should be listed as rare, threatened or endangered in the region or state.

Name/ Coordination	Restrictions	Life History Information
<u>Sea Turtles</u> **Loggerhead sea turtle** (*Caretta caretta*) **Green sea turtle** (*Chelonia mydas*) **Leatherback sea turtle** (*Dermochelys coriacea*) **Atlantic (Kemp's) Ridley sea turtle** (*Lepidochelys kempii*) Tim Goodger NMFS 410-226-5771	No formal restrictions. Report sightings to NMFS. Activities that could result in a 'take' are required to be coordinated with NMFS, DNR.	**Status at PIERP:** Juvenile forage area may be present in the waters around PIERP, in particular in shallow water and areas with SAV. NMFS is very interested in any sightings of sea turtles, as the lower and mid bay are thought to be habitat for juveniles, but not much data is available to evaluate this resource. **Breeding:** Sea turtles breed on sandy beaches near the coast. They are not expected to breed at PIERP. **Conservation Status:** Endangered Species Act- Listed Endangered or Threatened, depending on species.

SECTION 01270

MEASUREMENT AND PAYMENT

1. SCOPE:

This section covers the methods and procedures which will be used to measure the Contractor's work and to effect payment.

2. GENERAL:

The general outline of the principal features of each item as listed does not in any way limit the responsibility of the Contractor for making a thorough investigation of the drawings and specifications to determine the scope of work under the entire contract. Payment to the Contractor of the amounts based on the quantities of work as measured in accordance with the specified methods of measurement and the prices stipulated in the accepted proposal will constitute complete compensation for all work shown on the drawings, provided in the specifications or other Contract Documents and all costs of accepting the general risks, liabilities and obligations expressed or implied. Payment under all items shall include, but not necessarily be limited to, compensation for furnishing all supervision, labor, equipment, materials and services (including overhead and profit), as well as performing all work required to accomplish and complete the work specified under each item and other work required.

3. LUMP SUM ITEMS:

3.1 The quantities under lump sum items will not be measured except for the purpose of determining reasonable interim payments.

3.2 Interim payments will be made in accordance with the estimated value of work done as determined by the Contracting Officer or as specified in this section, and in accordance with CONTRACT CLAUSE for PAYMENTS.

4. UNIT PRICE ITEMS:

4.1 Measurement: Unit Price Items will be measured to extents shown on the drawings or as directed by the Contracting Officer.

4.2 QUANTITY SURVEYS:

4.2.1 Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting Officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer.(CENAB)

4.2.2 Interim measurements and/or payments may be adjusted to take account of partially completed work.

5. PAYMENT ITEMS:

5.1 MOBILIZATION AND DEMOBILIZATION (ITEM NO. 0001). No separate measurement will be made for Mobilization and Demobilization. Payment for mobilization shall include all costs associated with the transfer of all materials and equipment, for both the Contractor from its home station to the site and the Volunteers equipment from the land base site to the island. Payment for Demobilization shall include all costs associated with transferring all

equipment, excess materials, and debris, for both the Contractor and Volunteers, back to its point of origin or disposal site. Payment shall be made at the contract lump sum price under Item No. 0001, “Mobilization and Demobilization” of the Unit Price Schedule.

5.1.1 Payment. All costs associated with the mobilization and demobilization will be paid for at the contract lump sum price under Item No. 0001, " Mobilization and Demobilization ", of the Unit Price Schedule. Sixty percent (60%) of the contract lump sum price for Item No. 0001 shall be paid after the complete setup of equipment at the island. The remaining forty percent(40%) shall be paid after removal of all equipment and plant from the site and the completion of all clean-up of the work site.

5.2 REIMBURSEMENT OF PERFORMANCE BONDS: (AUG 2004) The Government will reimburse the Contractor for the entire amount of premiums paid for Performance Bonds at the contract lump sum price for Item No. 0002 "Reimbursement of Performance Bonds". Where additive or optional bid items are included on the price schedule, the Contractor will be reimbursed for bonds applying to each individual bid item which is awarded. Such payment will be made only after the Contractor furnishes to the Government evidence of full payment to the surety. In no case will any payment be made by the Government for reimbursement of Performance Bonds exceeding that amount bid by the Contractor under the aforementioned price schedule item. (CENAB)

5.3 WETLAND, HABITAT ISLAND, AND DIKE PLANTING (ITEM NO. 0003). No separate measurement will be made for Wetland, Habitat Island, and Dike Planting. Payment for this work shall be full compensation for furnishing all labor, equipment, site preparation, excavation, backfill, soil amendments, plant materials, mulching, goose exclosure fencing, staking, watering, tidal marsh seeding, maintenance, debris disposal, and all incidental items necessary to complete the work as shown on the drawings. Construction shall be in accordance with the applicable portions of the Specifications and the drawings. Payment shall be made at the contract lump sum price under Item No. 0003, “Wetland, Habitat Island, and Dike Planting” of the Unit Price Schedule.

5.4 PLANTS AND MATERIALS FOR VOLUNTEER PLANTING (ITEM NO. 0004). No separate measurement will be made for Plants and Materials for Volunteer Planting. Payment for this work shall be full compensation for furnishing all soil amendment materials, plant materials, goose exclosure fencing materials, labor and equipment to supply these materials, site preparation, staking, watering prior to formal acceptance, debris disposal, and all incidental items necessary to complete the work as shown on the drawings. Construction shall be in accordance with the applicable portions of the Specifications and the drawings. Payment shall be made at the contract lump sum price under Item No. 0004, “Plants and Materials for Volunteer Planting” of the Unit Price Schedule.

5.5 DIKE SEEDING (ITEM NO. 0005). Measurement shall be by the square yard of seeding, acceptably placed between the top of the high marsh zone and edge of roadway on the interior dike slope of Cell 3D as shown on the drawings or as directed by the Contracting Officer. The unit price shall include, hauling, placement, and full compensation for all plant, labor, materials, equipment, mulch and all incidental items necessary to complete the work as shown on the drawings. Construction shall be in accordance with applicable portions of the Specifications and the drawings. Payment shall be made at the contract unit price for Item No. 0005, “Dike Seeding” of the Unit Price Schedule.

5.6 EROSION CONTROL MATERIAL (ITEM NO. 0006). Measurement of the erosion control material shall be by the square yard, acceptably placed between the top of the high marsh zone and edge of roadway on the interior dike slope of

Cell 3D as shown on the drawings or as directed by the Contracting Officer. No allowance will be made for material in seams or overlaps. The unit price shall include, hauling, placement, anchoring in accordance with manufacturer's recommendations and full compensation for all plant, labor, materials, equipment, and all incidental items necessary to complete the work as shown on the drawings. Construction shall be in accordance with applicable portions of the Specifications and the drawings. Payment shall be made at the contract unit price for Item No. 0006, "Erosion Control Material" of the Unit Price Schedule.

END

SECTION 01330

SUBMITTAL PROCEDURES

1.1 SUBMITTAL IDENTIFICATION (SD)

Submittals required are identified by SD numbers and titles as follows:

SD-01 Preconstruction Submittals

SD-02 Shop Drawings

SD-03 Product Data

SD-04 Samples

SD-05 Design Data

SD-06 Test Reports

SD-07 Certificates

SD-08 Manufacturer's Instructions

SD-09 Manufacturer's Field Reports

SD-10 Operation and Maintenance Data
SD-11 Closeout Submittals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory . Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the

Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.6 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.7 SUBMITTAL REGISTER

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register files, containing the computerized ENG Form 4288 and instructions on the use of the files. These submittal register files will be furnished on a separate diskette. Columns "c" through "f" have been completed by the Government; the Contractor shall complete columns "a" and "g" through "i" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 5 calendar days after Notice to Proceed. The Contractor shall keep this diskette up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

1.8 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. No delay damages or time extensions will be allowed for time lost in late submittals.

1.9 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.10 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.10.1 Procedures

In the signature block provided on ENG Form 4025 the Contractor certifies that each item has been reviewed in detail and is correct and is in strict conformance with the contract drawings and specifications unless noted otherwise. The accuracy and completeness of submittals is the responsibility of the Contractor. Any costs due to resubmittal of documents caused by inaccuracy, lack of coordination, and/or checking shall be the responsibility of the Contractor. This shall include the handling and review time on the part of the Government. Each variation from the contract specifications and drawings shall be noted on the form; and, attached to the form, the Contractor shall set forth, in writing, the reason for and description of such variations. If these requirements are not met, the submittal may be returned for corrective action.

1.10.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.11 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.12 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the

submittals will be identified as having received approval by being so stamped and dated. 4 copies of the submittal will be retained by the Contracting Officer and 2 copies of the submittal will be returned to the Contractor.

1.13 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.14 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR

(Firm Name)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheets(s).

SIGNATURE: _____

TITLE: _____

DATE: _____

-- End of Section --

SUBMITTAL REGISTER
(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION

POPLAR ISLAND HABITAT RESTORATION PROJECT – CELL 3D WETLAND PLANTING, TALBOT COUNTY, MARYLAND

CONTRACTOR

SPECIFICATION SECTION
01010

				TYPE OF SUBMITTAL									CLASSI-FICATION			CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		
TRANS-MITTAL NO.	ITEM NO.	SPECIFICATION PARAGRAPH NO.	DESCRIPTION OF ITEM SUBMITTED	DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFO ONLY	GOV. APPROVED	REVIEWER	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERN-MENT	CODE	DATE	REMARKS
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.
		3.2	ADVANCED NOTIFICATION				X	X					X		OP									
		7.2.2	MASTER DEFICIENCY LIST									X	X		OP									
		7.3.1	ACCIDENT PREVENTION PLAN						X					X	OP									
		7.3.2	ACCIDENT REPORT						X				X		OP									
		7.5	FUEL TRANSFER PLAN	X					X				X		OP									
		7.6	TRAILER ANCHORAGE METHOD	X	X									X	OP									
		8	FUEL USAGE						X				X		OP									
		12.	PROGRESS SCHEDULE				X							X	OP									
		12.2	MODIFIED PROGRESS SCHEDULE CHART				X							X	OP									
		16(b)	TRANSPORTATION LOG									X	X		OP									
		18.10	FACILITIES PLAN	X	X									X	OP									
		18.11	TEMPORARY EXCAVATION AND EMBANKMENT	X	X									X	OP									
		19	DD FORM 1566					X					X		OP									

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

POPLAR IS. HABITAT RESTORATION PROJECT, CELL 3D WETLAND PLANTING,

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
					GOVT OR A/E REVWR	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01451	SD-01 Preconstruction Submittals														
			CQC Plan	3.2	G AR												
			Phase Notification		FIO												
			Request		G AR												
			CQC Mgr Qualification		G AR												
			SD-05 Design Data														
			Notification of Changes	3.2.4	FIO												
			Punchlist	3.8.1	FIO												
			Minutes	3.3	FIO												
			SD-06 Test Reports														
			Tests	3.7.1	FIO												
			Documentation	3.9	FIO												
			Tests Performed	3.7.1	FIO												
			QC Records		G AR												
		01720	SD-11 Closeout Submittals														
			Progress Prints		G AR												
			Final Requirements	1.6	G AR												
			CADD Files		FIO												
		02921A	SD-03 Product Data														
			Equipment	3.1.3	FIO												
			Surface Erosion Control Material	2.5	G												
			Delivery	1.4.1	FIO												
			Quantity Check	3.5	FIO												
			Seed Establishment Period	3.8	FIO												
			Maintenance Record	3.8.3.2	FIO												
			SD-06 Test Reports														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

POPLAR IS. HABITAT RESTORATION PROJECT, CELL 3D WETLAND PLANTING,

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02921A	Equipment Calibration	3.1.3	FIO													
			SD-07 Certificates															
			Seed	2.1	FIO													
			pH Adjuster	2.2.1	FIO													
			Fertilizer	2.2.2	G OP													
			Organic Material		G OP													

SUBMITTAL REGISTER
(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION

POPLAR ISLAND HABITAT RESTORATION PROJECT – CELL 3D WETLAND PLANTING, TALBOT COUNTY, MARYLAND

CONTRACTOR

SPECIFICATION SECTION
02931

TRANS-MITTAL NO.	ITEM NO.	SPECIFICATION PARAGRAPH NO.	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSI-FICATION		REVIEWER	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFO ONLY	GOV. APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERN-MENT	CODE	DATE	
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.
		1.4	INVOICE	X									X		OP									
		1.4	LOCATION OF SEED COLLECTION AREAS	X									X		OP									
		1.4	LOCATION OF CONTACT INFORMATION	X									X		OP									
		1.4	FENCE MATERIALS	X										X	OP									
		1.4	FENCE MATERIALS								X		X		OP									
		1.4	PURITY AND GERMINATION TEST RESULTS						X				X		OP									
		1.4	MAUNFACTURER'S OR VENDOR'S CERTIFIED ANALYSIS						X					X	OP									
		1.4	INSPECTION CERTIFICATES							X			X		OP									
		1.4	PLANT MATERIAL CERTIFICATION AND GUARANTEE							X				X	OP									
		1.4	MANUFACTURER'S INSTRUCTIONS			X								X	OP									
		1.4	FIELD LOG									X	X		OP									

TRANSMITTAL OF SHOPDRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE (*Read instructions on page two prior to initiating this form)*	DATE: Mo / Day / Yr / /	TRANSMITTAL NO --

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (*This section will be initiated by the contractor*)

TO:	**FROM:**	**CONTRACT NO .** DAC	**CHECK ONE:** ☐ **THIS IS A NEW SUBMITTAL** ☐ **THIS IS A RESUBMITTAL OF TRANSMITTAL**
SPECIFICATION SEC NO.(Cover only one section with each transmittal)	**PROJECT TITLE AND LOCATION**		

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.) b.	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction no. 8) c.	NO. OF COPIES d.	CONTRACT DOCUMENT SPEC. PARA NO. e.	REFERENCE DRAWING SHEET NO. f.	FOR CONTR-ACTOR USE CODE g.	VARIATION (See instruction No. 6) h.	FOR CE USE CODE i.

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict compliance with the contract drawings and specifications except as other wise stated. NAME AND SIGNATURE OF THE CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required numbers of copies.

2. Each transmittal shall be numbered consecutively in the space provided for “Transmittal No.”. This number in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The “Item No.” will be the same “Item No.” as indicated on ENG FORM 4288 for each entry on this form.

4. Submittals requiring expeditious handling will be submitted under a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the “Variation” column when a submittal is not in accordance with the plans and specifications -- also a written statement to that effect shall be included in the space provided for “Remarks”.

7. Form is self transmitting, letter of transmittal is not required.

8. When a sample of a material or Manufacturer’s Certificate of Compliance is transmitted, indicate “Sample” or “Certificate” in column c, Section I

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column I to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated in Section I, Column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A -- Approved as submitted
B -- Approved, except as noted on drawings.
C -- Approved except as noted on drawings. Refer to attached sheet resubmission required.
D -- Will be returned by separate correspondence.
E -- Disapproved (See Attached)
F -- Receipt acknowledged
FX -- Receipt acknowledged, does not comply as noted with contract requirements
G -- Other (*Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

Reverse of ENG Form 4025

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Price Schedule.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

Phase Notification

The Government shall be notified in a specified amount of time in advance of beginning the preparatory control phase.

Request; G AR.

The requesting of specialized individuals in specific disciplines to perform quality control.

CQC Mgr Qualification; G AR.

The evaluation of the project to determine the level of CQC System Manager required.

SD-05 Design Data

Notification of Changes

Any changes made by the Contractor.

Punchlist

Near the completion of all work, the CQC System Manager shall prepare a list of items which do not conform to the approved drawings and specifications.

Minutes

Prepared by the Government and signed by both the Contractor and the Contracting Officer and shall become a part of the contract file.

SD-06 Test Reports

Tests

Specified or required tests shall be done by the Contractor to verify that control measures are adequate.

Documentation

Results of tests taken.

Tests Performed

An information copy provided directly to the Contracting Officer.

QC Records; G AR.

Provide factual evidence that required quality control activities and/or tests have been performed.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including

quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 CQC PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 14 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization.The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of 5 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: environmental. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

Experience Matrix

Area	Qualifications
a. Environmental	Graduate Enviromental Engineer or a graduate in the biological sciences with 2 years experience in the type of work being performed on this project or technician with 5 yrs related experience

Experience Matrix

Area	Qualifications

3.4.4 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors" within 45 calendar days after NTP is a mandatory requirement for the position of the Quality Control Systems Manager. Certification is good for five (5) years at which time re-training is required. The Contractor's QC Systems Manager may be appointed and serve fully in that capacity pending certification. If the CQC Systems Manager fails to successfully complete the training, the Contractor should promptly appoint a new CQSM who shall then attend the next available course. The course is nine (9) hours long (1 day). The Construction Quality Management Course (CQMC) will be taught at least nine (9) times per year by the Baltimore District Corps of Engineers, at various locations around Baltimore and Washington, D.C., or at another site if conditions warrant. The CQMC cost will be borne by the Contractor and is one hundred and thirty five dollars ($135.00) per course, per person. Payment shall be made by check payable to either sponsors of the course; Associated Builders and Contractors, Inc., (ABC) 14120 Park Long Court, Suite 111, Chantilly, Virginia 20151 (Phone: 703-968-6205), or to the Associated General Contractors of America (GCA), Maryland Chapter, 1301 York Road, Heaver Plaza, Suite 202, Lutherville, Maryland 21093 (Phone: 410-321-7870) prior to the start of the course. Reservations to attend the course should be made directly to the organization sponsoring the course they attend. The Contractor has forty-five (45) calendar days to attend the course after the inssuance of the NTP. The Contractor shall contact the Contracting Officer upon award of the contract arrangements for the course.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that protion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 72 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 72 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, and landscaping shall meet criteria detailed in ASTM D 3740, ASTM E 329 and methods established by the Association of official Agricultural Chemists.

3.7.2.2 Laboratory Approval

The Contractor shall submit testing laboratory for approval.

3.7.3 Furnishing or Transportation of Samples for Testing

Furnishing or Transportation of Samples for Testing: Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the following address:

Field Exploration Unit
or
Soils Laboratory Unit
(indicate which on shipping or mailing forms)
Fort McHenry Yard
Baltimore, Maryland 21230"

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause in Section 00800 of the

Solicitation entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punchlist of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Off-site surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms enclosed at the end of this section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

Contractor's Name: _____
Address: _____
_____
Phone Number: _____

CONSTRUCTION QUALITY CONTROL REPORT

PROJECT NAME: _____
LOCATION:_____ DATE: _____
CONTRACT NUMBER:_____ REPORT NO.:_____

SUPERINTENDENT:_____

TYPE OF WORKERS	NUMBER	TYPES OF CONSTRUCTION EQUIPMENT ON SITE	NUMBER

SUBCONTRACTORS

COMPANY	RESPONSIBILITY	FOREMAN	NO. OF WORKERS

TOTALS

NO. OF WORKERS TODAY	MANHOURS TODAY	MANHOURS FOR THIS PERIOD

CONTRACT MATERIALS AND EQUIPMENT DELIVERED TO SITE:

WEATHER:_____ SITE CONDITIONS:_____

DID A DELAY OR WORK STOPPAGE OCCUR TODAY? _____
IF YES, EXPLAIN.

HAS ANYTHING DEVELOPED IN THE WORK WHICH MAY LEAD TO A CHANGE
OR FINDING OF FACT? _____ IF YES, EXPLAIN.

DESCRIPTION OF ALL WORK PERFORMED TODAY
(LIST BY DEFINABLE FEATURES OF WORK)

PREPARATORY INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
ATTACH MINUTES OF MEETING AND LIST OF ALL ATTENDEES.

HAVE ALL REQUIRED SUBMITTALS AND SAMPLES OF CONSTRUCTION BEEN APPROVED.

DO THE MATERIALS AND EQUIPMENT TO BE USED CONFORM TO THE SUBMITTALS?

HAS ALL PRELIMINARY WORK BEEN INSPECTED, TESTED, AND COMPLETED?

TEST REQUIRED AND INSPECTION TECHNIQUES TO BE EXECUTED TO PROVE CONTRACT COMPLIANCE (INCLUDE BOTH EXPECTED AND ACTUAL RESULTS)

HAS A PHASE HAZARD ANALYSIS BEEN PERFORMED?

COMMENTS AND DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

ALL INSTRUCTIONS RECEIVED FROM QA PERSONNEL AND ACTIONS TAKEN:

JOB SAFETY (INCLUDE MEETINGS HELD AND DEFICIENCIES NOTED WITH CORRECTIVE ACTIONS):

INITIAL INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION. COMMENTS AND/OR DEFICIENCIES NOTED AND CORRECTIVE ACTION TAKEN:

FOLLOW-UP INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION. COMMENTS AND/OR DEFICIENCIES NOTED AND CORRECTIVE ACTION TAKEN.

SIGNATURE:_____
QUALITY CONTROL REPRESENTATIVE/MANAGER

THE ABOVE REPORT IS COMPLETE AND CORRECT. ALL MATERIALS AND EQUIPMENT USED AND ALL WORK PERFORMED DURING THIS REPORTING PERIOD ARE IN COMPLIANCE WITH THE CONTRACT SPECIFICATIONS, AND SUBMITTALS, EXCEPT AS NOTED ABOVE.

SIGNATURE:_____
CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE

SECTION 01720

AS-BUILT DRAWINGS - CADD

PART 1 GENERAL

1.1 Preparation

This section covers the preparation of as-built drawings complete, as a requirement of this contract. The terms "drawings," "contract drawings," "drawing files," and "final as-built drawings" refer to a set of computer-aided design and drafting (CADD) contract drawings in electronic file format which are to be used for as-built drawings.

1.2 PROGRESS MARKED UP AS-BUILT PRINTS

The Contractor shall revise one set of paper prints to show the as-built conditions during the prosecution of the project. These as-built marked prints shall be kept current and available on the jobsite at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The as-built marked prints will be jointly reviewed for accuracy and completeness by the Contracting Officer and a responsible representative of the construction Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings and will continue the monthly deduction of the 10% retainage even after 50% completion of the contract. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and a representative of the Contractor regarding the accuracy and completeness of updated drawings. The prints shall show the following information, but not be limited thereto:

1.2.1 Location and Description

The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

1.2.2 Location and Dimensions

The location and dimensions of any changes within the building or structure.

1.2.3 Corrections

Correct grade, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

Correct elevations if changes were made in site grading.

1.2.4 Changes

Changes in details of design or additional information obtained from

working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

The topography, invert elevations and grades of all drainage installed or affected as a part of the project construction.

All changes or modifications which result from the final inspection.

1.2.5 Options

Where contract drawings or specifications present options, only the option selected for construction shall be shown on the as-built prints.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Progress Prints; G AR.

Preparation of two copies of as-builts from the Contractor to the Contracting Officer for review and approval.

Final Requirements; G AR.

CADD Files.

Shall consist of two sets of completed as-built contract drawings on separate media consisting of both CADD files (compatible with the Using Agency/Sponsor's system on electronic storage media identical to that supplied by the Government) and a CALS Type 1, Group 4, Raster Image File of each contract drawing.

Receipt by the Contractor of the approved marked as-built prints.

1.4 PRELIMINARY SUBMITTAL

At the time of final inspection, the Contractor shall prepare two copies of the progress as-built prints and these shall be delivered to the Contracting Officer for review and approval. These as-built marked prints shall be neat, legible and accurate. The review by Government personnel will be expedited to the maximum extent possible. Upon approval, one copy of the as-built marked prints will be returned to the Contractor for use in preparation of final as-built drawings. If upon review, the as-built marked prints are found to contain errors and/or omissions, they shall be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the as-built marked prints to the Contracting Officer within ten (10) calendar days.

1.5 DRAWING PREPARATION

1.5.1 As-Built Drawings Approval

Upon approval of the as-built prints submitted, the Contractor will be furnished by the Government one set of contract drawings, with all amendments incorporated, to be used for as-built drawings. These contract drawings will be furnished on CD-ROM. These drawings shall be modified as may be necessary to correctly show all the features of the project as it has been constructed by bringing the contract set into agreement with the approved as-built prints, adding such additional drawings as may be necessary. These drawings are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

1.5.2 Proficient Personnel

Only personnel proficient in the preparation of engineering CADD drawings to standards satisfactory and acceptable to the Government shall be employed to modify the contract drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be equal in quality to that of the originals. Line work, line weights, lettering, layering conventions, and symbols shall be the same as the original line work, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same guidance specified for original drawings. The title block and drawing border to be used for any new as-built drawings shall be identical to that used on the contract drawings. All additions and corrections to the contract drawings shall be accomplished using CADD media files supplied by the Government. These contract drawings will already be compatible with the Using Agency/Sponsor's system when received by the Contractor. The Using Agency/Sponsor uses AutoCAD Release 2000 CADD software system. The media files will be supplied on ISO 9660 Format CD-ROM. The Contractor is responsible for providing all program files and hardware necessary to prepare as-built drawings. The Contracting Officer will review all as-built drawings for accuracy and the Contractor shall make all required corrections, changes, additions, and deletions.

1.5.3 Final Revisions

When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the General Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "As-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. All original contract drawings shall be dated in the revision block (see ATTACHMENT 1 located at the end of this section).

1.6 FINAL REQUIREMENTS

After receipt by the Contractor of the approved marked as-built prints and the original contract drawing files the Contractor will, within 30 days for contracts less than $5 million or 60 days for contracts $5 million and above, make the final as-built submittal. The submittal shall consist of the following:

a) Two sets of the as-built contract drawings on separate CD's (ISO 9660

Format CD-ROM) consisting of the updated CADD files and a CALS Type 1 Group 4 Raster Image File of each contract drawing plate. The CALS files shall be exact duplicates of the full sized plots of the completed as-built contract drawings at a resolution of 400 dpi and may be either plotted to CALS files directly from the CADD files, or scanned to file from the prints.

b) Two sets of full size paper prints (plots) of the completed as-built contract drawings.

c) The return of the approved marked as-built prints.

They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any translations or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with its CADD system. All paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit as-built drawing files and marked prints as required herein shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.7 PAYMENT

No separate payment will be made for the as-built drawings required under this contract, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor.

PART 2 PRODUCT

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

-- End of Section --

RECORD DRAWING AS-BUILT

XYZ CONTRACTOR

Plate: 1

Sheet Number: T-1

FT. INDIANTOWN GAP PENNSYLVANIA

EQUIPMENT CONSENTRATION SITE

COVER SHEET

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND	Designed by:	Date: JAN 2001	Rev.
	Dwn by: / Ckd by:	Design file no.	
A/E FIRM/CONTRACTOR 3 LINES PROVIDED OR LOGO	Reviewed by:	Drawing Number: F-XXX-XX-XX	
	Submitted by: Chief, Branch	File name: FILENAME Plot date: 12/25/00 Plot scale: 1=1	

Mark	Description	Date	Appr.	Mark	Description	Date	Appr.
	AS-BUILT	10 SEP 02					
3	REVISED SECTION A-A AND C-C	5 JAN 01	A.E. D.P.				
2	REVISED PER AMENDMENT NO. 2	30 DEC 00	A.E. D.P.				
1	REVISED PER AMENDMENT NO. 1	25 DEC 00	A.E. D.P.				

ATTACHMENT 1

SECTION 02921A

DIKE SEEDING
11/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 602	(1995a) Agricultural Liming Materials

U.S. DEPARTMENT OF AGRICULTURE (USDA)

AMS Seed Act	(1995) Federal Seed Act Regulations Part 201

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Equipment
Surface Erosion Control Material; G

Manufacturer's literature including physical characteristics, application and installation instructions for equipment, surface erosion control material and chemical treatment material.

A listing of equipment to be used for the seeding operation.

Delivery

Delivery schedule.

Quantity Check

Bag count or bulk weight measurements of material used compared with area covered to determine the application rate and quantity installed.

Seed Establishment Period

Calendar time period for the seed establishment period. When there is more than one seed establishment period, the boundaries of the seeded area covered for each period shall be described.

Maintenance Record

Maintenance work performed, area repaired or reinstalled, diagnosis for unsatisfactory stand of grass plants.

SD-06 Test Reports

Equipment Calibration

Certification of calibration tests conducted on the equipment used in the seeding operation.

SD-07 Certificates

Seed; G|OP
pH Adjuster; G|OP
Fertilizer; G|OP
Organic Material; G|OP

Prior to the delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include the following:

a. Seed. Classification, botanical name, common name, percent pure live seed, minimum percent germination and hard seed, maximum percent weed seed content, and date tested.

b. pH Adjuster. Calcium carbonate equivalent and sieve analysis.

c. Fertilizer. Chemical analysis and composition percent.

d. Organic Material: Composition and source.

f. Soil Conditioner: Composition and source.

g. Mulch: Composition and source.

1.3 SOURCE INSPECTION

The source of delivered topsoil shall be subject to inspection.

1.4 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.4.1 Delivery

A delivery schedule shall be provided at least 15 calendar days prior to the first day of delivery.

1.4.1.1 Soil Amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's chemical analysis. In lieu of containers, soil amendments may be furnished in bulk. A chemical analysis shall be provided for bulk deliveries.

1.4.2 Inspection

Seed shall be inspected upon arrival at the job site for conformity to species and quality. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected. Other materials shall be inspected for compliance with specified requirements. The following shall be rejected: open soil amendment containers or wet soil amendments Unacceptable materials shall be removed from the job site.

1.4.3 Storage

Materials shall be stored in designated areas. Seed, lime, and fertilizer shall be stored in cool, dry locations away from contaminants.

1.4.4 Handling

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

1.4.5 Time Limitation

Hydroseeding time limitation for holding seed in the slurry shall be a maximum 24 hours.

PART 2 PRODUCTS

2.1 SEED

2.1.1 Seed Classification

State-certified seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS Seed Act and applicable state seed laws.

2.1.2 Permanent Seed Species and Mixtures

Seed species and mixtures shall be proportioned by weight as follows:

Genus/Species	Common Name	Cultivar	Pounds/Acre
Warm Season Grasses			
Panicum virgatum	switchgrass	'Shelter'	5 lbs. PLS*
Schizachyrium scoparium	little bluestem	'Aldous' or 'Camper'	3 lbs. PLS*
Panicum amarum	coastal panicgrass	'Atlantic'	10 lbs. PLS*
Panicum clandestinum	desertongue	'Tioga'	5 lbs. PLS*
Cool Season Grasses			
Elymus virginicus	Virginia wildrye		1 lb.
Agrostis alba	Redtop	common	7 lbs.
Lollium perenne	Perennial Rye	common	2 lbs.
Lollium	Annual Rye		2 lbs.

* Rate for species is listed as Pure Live Seed (PLS) pounds rather than bulk

Genus/Species	Common Name	Cultivar	Pounds/Acre
and need to ordered as PLS			
Wildflower and legumes			
Desmodium canadense (Inoculate)	showy tick trefoil		4 lbs.
Chamaecrista fasciculate (Inoculate)	partridge pea		4 lbs.
Rudbeckia hirta	black-eyed susan		2 lbs.
Aster spp.	New England, White Wood Aster, etc		1 lb.

2.1.3 Seed Sources

Ernst Conservation Seeds
9006 Mercer Pike
Meadville, PA 16335
Ph. (800) 873-3321 FAX (814) 336-5191

Sharp Brother Seed Co.
Healy, Kansas 67850
Ph. (800) 4-NATIVE

Prarie Nursery
P.O. Box 306
Westfield, WI 53964
Ph. (800) 476-9453 FAX (608) 296-2741

2.1.4 Quality

Weed seed shall be a maximum 1 percent by weight of the total mixture.

2.1.5 Seed Mixing

The mixing of seed may be done by the seed supplier prior to delivery, or on site as directed.

2.1.6 Substitutions

Substitutions will not be allowed without written request and approval from the Contracting Officer.

2.2 SOIL AMENDMENTS

Soil amendments shall consist of pH adjuster, fertilizer, organic material and soil conditioners meeting the following requirements. Vermiculite shall not be used.

2.2.1 pH Adjuster

The pH adjuster shall be an agricultural liming material in accordance with ASTM C 602. These materials may be burnt lime, hydrated lime, ground

limestone, sulfur, or shells. The pH adjuster shall be used to create a favorable soil pH for the plant material specified.

2.2.1.1 Limestone

Limestone material shall contain a minimum calcium carbonate equivalent of 80 percent. Gradation: A minimum 95 percent shall pass through a No. 8 sieve and a minimum 55 percent shall pass through a No. 60 sieve. To raise soil pH, ground limestone shall be used.

2.2.1.2 Hydrated Lime

Hydrated lime shall contain a minimum calcium carbonate equivalent of 110 percent. Gradation: A minimum 100 percent shall pass through a No. 8 sieve and a minimum 97 percent shall pass through a No. 60 sieve.

2.2.1.3 Burnt Lime

Burnt lime shall contain a minimum calcium carbonate equivalent of 140 percent. Gradation: A minimum 95 percent shall pass through a No. 8 sieve and a minimum 35 percent shall pass through a No. 60 sieve.

2.2.2 Fertilizer

The nutrients ratio shall be 12 percent nitrogen, 24 percent phosphorus, and 24 percent potassium. Fertilizer shall be controlled release commercial grade, free flowing, uniform in composition, and consist of a nitrogen-phosphorus-potassium ratio. The fertilizer shall be derived from sulphur coated urea, urea formaldehyde, plastic or polymer coated pills, or isobutylenediurea (IBDU). Fertilizer shall be balanced with the inclusion of trace minerals and micro-nutrients.

2.3 MULCH

Mulch shall be free from weeds, mold, and other deleterious materials. Mulch materials shall be native to the region.

2.3.1 Straw

Straw shall be stalks from oats, wheat, rye, barley, or rice, furnished in air-dry condition and with a consistency for placing with commercial mulch-blowing equipment.

2.3.2 Hay

Hay shall be native hay, sudan-grass hay, broomsedge hay, or other herbaceous mowings, furnished in an air-dry condition suitable for placing with commercial mulch-blowing equipment.

2.3.3 Wood Cellulose Fiber

Wood cellulose fiber shall not contain any growth or germination-inhibiting factors and shall be dyed an appropriate color to facilitate placement during application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 4.5 to 6.0.

2.3.4 Paper Fiber

Paper fiber mulch shall be recycled news print that is shredded for the

purpose of mulching seed.

2.4 WATER

Water shall be the responsibility of the Contractor, unless otherwise noted. Water shall not contain elements toxic to plant life.

2.5 SURFACE EROSION CONTROL MATERIAL

Surface erosion control material shall conform to the following:

2.5.1 Surface Erosion Control Blanket

Blanket shall be machine produced mat of wood excelsior formed from a web of interlocking wood fibers; covered on one side with either knitted straw blanket-like mat construction; covered with biodegradable plastic mesh; or interwoven biodegradable thread, plastic netting, or twisted kraft paper cord netting.

2.5.2 Surface Erosion Control Fabric

Fabric shall be knitted construction of polypropylene yarn with uniform mesh openings 3/4 to 1 inch square with strips of biodegradable paper. Filler paper strips shall have a minimum life of 6 months.

2.5.3 Surface Erosion Control Net

Net shall be heavy, twisted jute mesh, weighing approximately 1.22 pounds per linear yard and 4 feet wide with mesh openings of approximately 1 inch square.

2.5.4 Erosion Control Material Anchors

Erosion control anchors shall be as recommended by the manufacturer.

PART 3 EXECUTION

3.1 INSTALLING SEED TIME AND CONDITIONS

3.1.1 Seeding Time

Seed shall be installed from DEC 15 to JUN 01.

3.1.2 Seeding Conditions

Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the seeding operations, proposed alternate times shall be submitted for approval.

3.1.3 Equipment Calibration

Immediately prior to the commencement of seeding operations, calibration tests shall be conducted on the equipment to be used. These tests shall confirm that the equipment is operating within the manufacturer's specifications and will meet the specified criteria. The equipment shall be calibrated a minimum of once every day during the operation. The calibration test results shall be provided within 1 week of testing.

3.2 SITE PREPARATION

3.2.1 Application of Soil Amendments

3.2.1.1 Applying pH Adjuster

The application rate shall be 500 - 1000 lbs. per acre. The pH adjuster shall be incorporated into the soil to a maximum 4 inch depth or may be incorporated as part of the tillage operation.

3.2.1.2 Applying Fertilizer

The application rate shall be 400 pounds per acre including 100 lbs. slow release nitrogen. Fertilizer shall be incorporated into the soil to a maximum 4 inch depth or may be incorporated as part of the tillage or hydroseeding operation.

3.2.2 Tillage

Soil on slopes up to a maximum 3-horizontal-to-1-vertical shall be tilled to a minimum 4 inch depth. On slopes between 3-horizontal-to-1-vertical and 1-horizontal-to-1 vertical, the soil shall be tilled to a minimum 2 inch depth by scarifying with heavy rakes, or other method. Rototillers shall be used where soil conditions and length of slope permit. On slopes 1-horizontal-to-1 vertical and steeper, no tillage is required. Drainage patterns shall be maintained as indicated on drawings. Areas compacted by construction operations shall be completely pulverized by tillage. Soil used for repair of surface erosion or grade deficiencies shall conform to topsoil requirements. The pH adjuster, fertilizer, and soil conditioner may be applied during this procedure.

3.2.3 Prepared Surface

3.2.3.1 Preparation

The prepared surface shall be a maximum 1 inch below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas. The prepared surface shall be completed with a light raking to remove debris.

3.2.3.2 Protection

Areas with the prepared surface shall be protected from compaction or damage by vehicular or pedestrian traffic and surface erosion.

3.3 INSTALLATION

Prior to installing seed, any previously prepared surface compacted or damaged shall be reworked to meet the requirements of paragraph SITE PREPARATION. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

3.3.1 Installing Seed

Seeding method shall be Hydroseeding. Seeding procedure shall ensure even coverage. Gravity feed applicators, which drop seed directly from a hopper onto the prepared soil, shall not be used because of the difficulty in achieving even coverage, unless otherwise approved. Absorbent polymer

powder shall be mixed with the dry seed at the rate recommended by the manufacturer.

3.3.2 Hydroseeding

Seed shall be mixed to ensure broadcast at the rate of 30 pounds per acre. Seed and fertilizer shall be added to water and thoroughly mixed to meet the rates specified. The time period for the seed to be held in the slurry shall be a maximum 24 hours. Mulch shall be added as marker after the seed, fertilizer, and water have been thoroughly mixed to produce a homogeneous slurry. Slurry shall be uniformly applied under pressure over the entire area. The hydroseeded area shall not be rolled.

3.3.3 Mulching

3.3.3.1 Wood Cellulose Fiber, Paper Fiber, and Recycled Paper

Wood cellulose fiber, paper fiber, or recycled paper shall be applied as part of the hydroseeding operation. The mulch shall be mixed at a minimum rate and applied as seed marker only.

3.3.4 Watering Seed

Watering shall be started immediately after completing the seeding of an area. Water shall be applied to supplement rainfall at a rate sufficient to ensure moist soil conditions to a minimum 1 inch depth. Run-off and puddling shall be prevented. Watering trucks shall not be driven over turf areas, unless otherwise directed. Watering of other adjacent areas or plant material shall be prevented.

3.4 SURFACE EROSION CONTROL

3.4.1 Surface Erosion Control Material

Where indicated or as directed, surface erosion control material shall be installed in accordance with manufacturer's instructions. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade.

3.4.2 Soil Amendments

3.4.2.1 Soil Amendments

When soil amendments have not been applied to the area, the quantity of 1/2 of the required soil amendments shall be applied and the area tilled in accordance with paragraph SITE PREPARATION. The area shall be watered in accordance with paragraph Watering Seed.

3.4.2.2 Remaining Soil Amendments

The remaining soil amendments shall be applied in accordance with the paragraph Tillage when the surface is prepared for installing seed.

3.5 QUANTITY CHECK

For materials provided in bags, the empty bags shall be retained for recording the amount used. For materials provided in bulk, the weight certificates shall be retained as a record of the amount used. The amount of material used shall be compared with the total area covered to determine

the rate of application used. Differences between the quantity applied and the quantity specified shall be adjusted as directed.

3.6 RESTORATION AND CLEAN UP

3.6.1 Restoration

Existing turf areas, pavements, and facilities that have been damaged from the seeding operation shall be restored to original condition at Contractor's expense.

3.6.2 Clean Up

Excess and waste material shall be removed from the seeded areas and shall be disposed offsite. Adjacent paved areas shall be cleaned.

3.7 PROTECTION OF INSTALLED AREAS

Immediately upon completion of the seeding operation in an area, the area shall be protected against traffic or other use by erecting barricades and providing signage as required, or as directed.

3.8 SEED ESTABLISHMENT PERIOD

3.8.1 Commencement

The seed establishment period to obtain a healthy stand of grass plants shall begin on the first day of seeding work under this contract and shall continue through the remaining life of the contract and end 12 months after the last day of the seeding operation required by this contract. Written calendar time period shall be furnished for the seed establishment period. When there is more than 1 seed establishment period, the boundaries of the seeded area covered for each period shall be described. The seed establishment period shall be modified for inclement weather, shut down periods, or for separate completion dates of areas.

3.8.2 Satisfactory Stand of Grass Plants

Grass plants shall be evaluated for species and health when the grass plants are a minimum 4 inches high.

3.8.2.1 Dike Slope

A satisfactory stand of grass plants from the seeding operation for a dike slopes shall be a minimum 100 grass plants per square foot. Bare spots shall be a maximum 9 inches square. The total bare spots shall be a maximum 2 percent of the total seeded area.

3.8.3 Maintenance During Establishment Period

Maintenance of the seeded areas shall include eradicating weeds, insects and diseases; protecting embankments and ditches from surface erosion; maintaining erosion control materials and mulch; protecting installed areas from traffic; mowing; watering; and post-fertilization.

3.8.3.1 Repair or Reinstall

Unsatisfactory stand of grass plants and mulch shall be repaired or reinstalled, and eroded areas shall be repaired in accordance with

paragraph SITE PREPARATION.

3.8.3.2 Maintenance Record

A record of each site visit shall be furnished, describing the maintenance work performed; areas repaired or reinstalled; and diagnosis for unsatisfactory stand of grass plants.

-- End of Section --

SECTION 02931

LANDSCAPING FOR TERRESTRIAL AND TIDAL MARSH ZONES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Under these items, the Contractor shall furnish all labor, materials, equipment and services necessary for the proper execution of all landscaping work, as specified herein and as shown on the Contract Drawings, including all incidental and appurtenant work required for a complete job.

1.2 REFERENCE STANDARDS

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of Nurserymen, Inc., (American National Standards Institute) Nursery Stock (Z60.1)

American Joint Committee on Horticultural Nomenclature Standardized Plant Names.

Herbaceous Plants of Maryland. 1984. Brown and Brown. University of Maryland. College Park, Maryland.

Woody Plants of Maryland. 1999. Brown and Brown. University of Maryland. College Park, Maryland.

ASTM C 33 Standard Specification for Concrete Aggregates

1.3 QUALITY CONTROL

1.3.1 General

The Contractor shall provide trees and plants of quantity, size, genus, species and variety shown and scheduled in the Contract Documents for landscape work and complying with recommendations and requirements of ANSI Z60.1 American Standard for Nursery Stock. The Contractor shall provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries abrasions, or disfigurement.

1.3.2 Nomenclature

All plants furnished shall be true to name. Plant names shall agree with the nomenclature of Standardized Plant Names as adopted by the American Joint Committee on Horticultural Nomenclature, 1942 Edition. Size and grading shall conform to those of the American Association of Nurserymen.

1.3.3 Source

All plants shall come from State of Maryland native stock as listed within Herbaceous Plants of Maryland or Woody Plants of Maryland, or within a 250-mile radius of Poplar Island. All specified plants shall have been grown in the same climatic zone as that of the planting site. Plants collected from the wild shall be rejected. No substitutions of specified plants will be accepted without prior approval of the Contracting Officer's Representative (COR). If specified landscape material is not obtainable, submit proof of non-availability to the COR, together with proposal for use of equivalent material.

1.3.4 Packaged Material. Package standard products with manufacturer's certified analysis. For other material provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable, or as further specified.

1.3.5 Inspection

(a) The Contractor shall inspect trees and shrubs at place of growth, for compliance with requirements for genus, species, variety, size and quality. Contractor shall provide a minimum of fourteen (14) calendar days notice to the COR to allow for a joint inspection of the nursery.

(b) Plant materials shall be inspected by the Contractor upon arrival at the job site and prior to planting. Any materials not in compliance with specifications shall not be accepted and shall be removed from the work site immediately for ultimate off-island removal.

(c) The COR retains the right to further inspect trees for size and condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. The Contractor shall remove rejected trees immediately from work site for ultimate off-island removal.

(d) The Contractor shall be responsible for all certificates of inspection of plant material that may be required by Federal, state or other authorities to accompany each shipment of plants. On arrival, the certificates shall be filed with the COR. The Contractor shall submit a copy of each shipping invoice with their daily Quality Control Report.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330, SUBMITTAL PROCEDURES prior to construction/planting operations:

SD-03 Product Data

Invoice

The invoice or a written statement showing the size and grade of materials received or shipped, together with the source and health of the plant material.

Location of Seed Collection Areas

Location of seed collection areas for smooth cordgrass (*Spartina alterniflora*) and salt marsh hay (*Spartina patens*).

Location and Contact Information

Location and contact information for laboratory performing seed germination and purity test results for smooth cordgrass (*Spartina alterniflora*) and salt marsh hay (*Spartina patens*).

Fence Materials; G

Manufacturer’s data sheets for nylon twine, aluminum tags, aluminum tag tie wire, shredded hardwood mulch, hardware cloth, barrier fencing, mylar ribbon, bamboo poles and oak stakes.

SD-04 Samples

Fence Materials

Samples of exclosure fence materials for nylon twine, aluminum tags, aluminum tag tie wire, shredded hardwood mulch, hardware cloth, barrier fencing, mylar ribbon, bamboo poles and oak stakes.

SD-06 Test Reports

Purity and Germination Test Results

Smooth cordgrass (*Spartina alterniflora*) purity and germination test results for each seed batch to be used for sowing the test plots including method of ensuring 10 pure live seed (PLS) per square foot coverage.

Manufacturer’s or Vendor’s Certified Analysis, G

Manufacturer’s or vendor’s certified analysis for mycorrhizal soil treatments and fertilizer materials shall be submitted with samples.

SD-07 Certificates;

Inspection Certificates

All necessary state, Federal and other inspection certificates as may be required by law.

Plant Material Certification and Guarantee, G

Certification and guarantee that all plant material is true to name and in conformance with these specifications.

SD-08 Manufacturer's Instructions

Manufacturer's Instructions; G

List of equipment, methods of operation, and maintenance plan, including methods to supply fresh water for planted woody vegetation. Maintenance plan shall also include instructions for Government maintenance during the Warranty period.

SD-09 Field Reports

Field Log

Field Log of tagged woody plant material.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

1.5.1 Delivery of Materials

(a) All plant materials shall be protected from drying out and from wind damage during delivery.

(b) Packaged Materials. Deliver packaged materials in unopened bags or containers, each bearing the name, warranty, and trademark of the producer and the composition, analysis and the weight of the material.

(c) Herbs, Shrubs and Trees. The Contractor shall provide herbs, shrubs and trees of the stock type and quantities given in the Contract Drawings. Do not prune woody vegetation prior to delivery unless otherwise approved by the COR. Do not bend or bind-tie woody vegetation in such a manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery, and insure that all peat pot, container stock, tubling & plug stock and/or bare root material is protected from salt water, handled properly and is not dropped.

(d) The Contractor shall deliver the specified plant stock after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery:

(1) set island and dike zone plantings in upland areas, provide shade from the sun, protect from wind, weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture; saturate with fresh water as necessary to prevent drying of plant stock; and

(2) set and secure tidal marsh plantings in their appropriate tidal elevations between elevation 1.8 to 2.0 ft. MLLW for salt marsh hay (*Spartina patens*) and between elevation 1.5 to 1.8 ft. MLLW for smooth cordgrass (*Spartina alterniflora*). All plants shall be protected from wind, weather and mechanical damage, with roots kept moist.

(e) The Contractor shall not remove container grown or tube stock from container until planting time.

(f) Material shall be planted in the ground immediately after delivery to site. Do not allow the plants to dry out or freeze.

(g) Fertilizer delivered to the job site shall be in original, unopened containers bearing the manufacturer's chemical analysis and essential information.

(h) Mychorrizal, seed and fertilizer containers shall be protected from exposure to precipitation and direct sunlight.

(i) Contractor is responsible to replace any plants damaged as a result of his operations, or failure to protect, at no additional cost to the Government.

1.6 PLANTING ZONES

1.6.1 Island and Dike Zone Plantings

Unless otherwise directed by the COR, woody vegetation material shall be planted from April 15 to May 31 and from September 1 to October 15. Perform actual planting when conditions are suitable. No plant material shall be planted when the ground is frozen or in excessively moist condition. Notify the COR fourteen (14) calendar days before proceeding with any planting operations.

1.6.2 Tidal Marsh Plantings:

All smooth cordgrass (*Spartina alterniflora*) peat pot plants shall be installed between April 15 and June 30. Salt marsh hay (*Spartina patens*) peat pot or plug plantings and smooth cordgrass (*Spartina alterniflora*) seeding shall be installed between April 15 and May 31. Perform actual planting in the dry when conditions are suitable. The Contractor shall proceed with and complete landscape work as rapidly as portions of site become available, working with the tides. No plant material shall be planted when the ground is frozen or inundated condition. Notify the COR fourteen (14) calendar days before proceeding with any planting operations.

1.7 WARRANTY

1.7.1 Warranty Period

All landscaping work shall have a replacement guarantee for a period of two (2) years beginning at the date of final acceptance of the landscaping work.

1.7.2 Operations

The Government shall weed, prune, and water all woody vegetation under this Contract during the Warranty period in accordance with the approved maintenance instructions provided by the Contractor. The Contractor shall periodically inspect maintenance operations of the Government, and promptly report to the COR any methods, practices, or operations which the Contractor

considers unsatisfactory, not in accord with the Contractor's interests, or not good horticultural practice. Failure of the Contractor to inspect and report shall be construed as an acceptance by the Contractor of the Government maintenance operations. The Contractor shall not claim thereafter that any defects developing later are results of such methods, practices, or operations. The Contractor shall replace, according to the original specifications, any plant material which is dead or in a dying condition at the request of the COR. The COR shall be the sole judge as to the condition of the plants. The warranty and maintenance applies to all planted and seeded areas, not just woody vegetation.

1.7.3 Replacement

At the end of the warranty period, and upon written request, a joint inspection will be made by the Contractor and the COR. Any plant material that is dead or not showing satisfactory growth, as determined by the COR, shall be promptly removed and replaced by the Contractor during plant stock installation season specified in Paragraph 1.6. The replacement shall be of the same variety, size and character as specified for the original planting. Unless a written waiver of this clause is issued, under the terms of the warranty, replacement plants shall be subject to approval by the COR.

PART 2 - MATERIALS

2.1 FERTILIZER, MYCHORRIZAL INOCULANTS, MULCH, AND PLANT TAGS

2.1.1 Smooth Cordgrass (*Spartina alterniflora*) & Salt Marsh Hay (*Spartina patens*) Fertilizer

Where indicated on the Contract Drawings, 8 to 9 month release, 13N:13P:13K Osmocote or approved equivalent.

2.1.2 Woody Vegetation Container Stock Fertilizer

Ten (10) gram tablets, 8 to 9 month release, 20N:10P:5K Agriform or approved equivalent.

2.1.3 Woody Vegetation Container Stock Mycorrhizal Inoculant

Three (3) ounce packages Rhizanova endo/ectomycorrhizal blend with humic acid, water absorbent polymer and organic nutrients or approved equivalent.

2.1.4 Mulch

Shredded hardwood mulch sterilized to remove all viable seeds. Mulch to be free of all stones, debris and trash.

2.1.5 Plant Tags and Tie Wire

Tags shall be constructed of blue anodized aluminum tags permanently stamped with consecutive numbers. Tag dimensions shall be 1.25 inches in diameter with 0.1875 inch holes drilled in each tag. Tie wire shall be 0.0625 inch diameter aluminum wire and firmly tied onto each tag.

2.2 WOODY PLANT MATERIAL

The Contractor shall furnish all woody plant material in the types, quantities and sizes shown in the Plant Schedule on the Contract Drawings. All woody plant stock to be nursery grown and not field collected. Nursery grown plants shall mean plants propagated by seed, division, tissue culture or cloned from existing stock at a nursery, which are healthy, vigorous plants, cultivated in accordance with sound horticultural practice. All plants shall have been grown under similar climatic conditions as those of the planting site.

2.2.1 Bareroot Stock Material

(a) Minimum height of six (6) inches for tree and shrub seedlings and twelve (12) inches for tree and shrub whips as measured from root collar to tip.

(b) Target height of nine (9) inches for shrubs seedlings, twelve (12) inches for tree seedlings, eighteen (18) inches for shrub whips and twenty-seven (27) inches for tree whips as measured from root collar to tip.

(c) A vigorous compact, fibrous root system with a minimum taproot length of eight (8) inches and target length of eight (8) to ten (10) inches, as measured prior to pruning.

(d) Each plant shall have a minimum of six (6) first-order lateral roots derived from the main taproot. All of the plants delivered to the site, taken as a whole, shall average between eight (8) and ten (10) first-order lateral roots.

(e) Unless directed otherwise by the COR, taproots and lateral roots greater than eight (8) inches shall be pruned or undercut at the nursery according to best forestry practices to a length of eight (8) inches.

(f) An early undercut of the stock shall be allowed. However, the resulting delivered stock shall be readily plantable, and the stock shall not have “mop-head” or “paintbrush” root systems that are difficult to plant as specified.

(g) Free from recognizable disease and mechanical damage.

(h) A continuous bark with cambium green or yellowish in color.

(i) After lifting the stock from the growing beds and prior to bagging, a kaolin clay emulsion shall be applied to the entire root system of all bareroot stock. A gel emulsion may be utilized for the root treatment in lieu of the kaolin clay.

2.2.2 Container, Plug and Tubling Material

(a) Minimum height and height range measured from planting medium surface to apical tip as shown on Plant Schedule in Contract Drawings.

(b) A vigorous compact, fibrous root system throughout the growing medium.

(c) Each plant shall have a minimum of eight (8) first-order lateral roots derived from the main taproot.

(d) The extracted root system shall conform to the shape and dimensions of the growing container without sloughing soil or growing medium, as determined by the on-site inspection. Materials not conforming to the container dimensions may be rejected without compensation.

(e) The extracted root system shall have the majority of the roots in vertical orientation. If the horizontal roots are thick and flattened and the root plug stays in a thick net shape of the original container when the growing media are shaken loose, the plant shall be determined to be “pot-bound” and shall be considered unacceptable stock.

(f) Free from recognizable disease and mechanical damage.

(g) A continuous bark with cambium green or yellowish in color.

(h) The top one (1) inch of conifer stock shall possess stiff foliage and stems with firm terminal buds as a sign of proper hardening of the stock.

2.3 WATER

2.3.1 Island and Dike Zone Plants

Water for island and dike zone plantings shall be fresh water that is free from salt, toxic substances and chemicals that may be injurious to plant growth. Trucks, hoses, and other watering equipment required to transport water from a source on Poplar Island to the planting area shall be included as part of the work with all costs incidental to this item.

2.3.2 Tidal Marsh Plants

Water for tidal marsh plantings shall be local bay water applied by setting and securing unplanted stock within their associated tidal ranges of 1.8 to 2.0 ft. MLLW for salt marsh hay (*Spartina patens*) and 1.5 to 1.8 ft. MLLW for smooth cordgrass (*Spartina alterniflora*) . Additional watering may be required to prevent plants from drying out.

2.4 SMOOTH CORDGRASS (*SPARTINA ALTERNIFLORA*) SEED

(a) Seed shall be collected from a mid-Atlantic estuary system within 250 miles of Poplar Island during the 2004 Fall collection window. Sufficient seed shall be collected for both sowing test plots and for propagating the required quantities of peat pot stock. Collection location shall be documented and submitted to the COR.

(b) Purity testing to be performed thirty (30) calendar days after collection by an approved laboratory with results submitted to the COR seven (7) calendar days after testing is complete.

(c) Seed to be stored over winter shall be in conditions to prevent breaking dormancy.

(d) Germination testing to be executed in early Spring by an approved laboratory with results submitted to the COR seven (7) calendar days after testing is complete.

(e) Seed materials shall be inspected by the Contractor upon arrival at the job site and prior to planting. Any materials not in compliance with specifications shall not be accepted and shall be removed from the job site immediately. The Contractor shall make seed materials available to the COR for inspection as well.

(f) Seeds shall be fresh, free of deleterious material and disease and delivered to the site in closed five (5) gallon containers during delivery and stored in same at room temperature until time of sowing. A certified net weight, date of germination tests, supplier's name and certified guarantee of analysis including purity and germination percentages shall be shown clearly on each storage container.

2.5 SMOOTH CORDGRASS (*SPARTINA ALTERNIFLORA*) AND SALT MARSH HAY (*SPARTINA PATENS*) PEAT POT AND PLUG STOCK

(a) Smooth cordgrass (*Spartina alterniflora*) to be propagated from same seed collected for sowing test plots. Salt marsh hay (*Spartina patens*) seed to be collected to produce the required quantities of peat pot or plug stock quantities from a mid-Atlantic estuary system within 250 miles of Poplar Island during the 2004 Fall collection window. Collection location shall be documented and submitted to the COR.

(b) Collected seed shall be propagated using sand filler.

(c) Peat pot stock shall be grown in 1.75 by 1.75-inch sided peat pots long enough and under proper conditions for the root system to be sufficiently well-developed through the sides and bottom of the pot to prevent easy removal for the plant and to prohibit removal or structural damage to the plant when submerged underwater. Roots shall be white in coloration and firm to the touch. Roots shall not have a strong sulfide odor (rotten egg smell) or be black in color. Plants that can be removed from the pots by holding the stem growth and gently pulling on the pots shall be rejected without compensation to the Contractor.

(d) Plug stock shall be grown in 2-inch cavity trays. Plugs shall be propagated and grown in cells and not as bare root stock or as bedded plants. The extracted root system shall conform to the shape and dimensions of the growing cells without sloughing soil or growth media as determined by on-site inspection. Materials not conforming to the dimensions of the cell may be rejected without compensation to the Contractor. The extracted root system of the plugs shall have the majority of the roots in the vertical orientation. Roots shall be white in coloration and firm to the touch. Roots shall not have a strong sulfide odor (rotten egg smell) or be black in color. If the horizontal roots are thick and flattened and the roots stays in a thick net shape of the original cell when the media is shaken loose, the

plant may be determined to be “pot bound “ and shall be rejected without compensation to the Contractor.

2.6 HAND TOOLS

All hand tools, including rakes and scarifying tools, shall be of sturdy construction and manufactured of high-quality materials. These tools shall be capable of efficiently performing the required work, as solely determined by the COR. Any tools determined to be substandard by the COR shall not be utilized for this work and shall be removed from the work site by the end of the working day. At no additional cost to the Government, the Contractor shall supply new tools capable of performing the required work within twenty-four (24) hours of the rejection of any tools. Tools shall conform to the requirements of any notes on the Contract Drawings.

2.7 FILLER SAND

Sand shall be either fine (0.1 – 0.25 millimeter diameter), medium (0.25 – 0.5 millimeter diameter), and/or coarse (0.5 – 2.0 millimeter diameter) class sand. Fine aggregate as defined in ASTM C 33 shall be considered as meeting this criteria. The sand shall contain no germination, growth-inhibiting properties, or elements or compounds at concentrations that will be phytotoxic.

2.8 EXCLOSURE FENCE

Exclosure fence materials shall conform to the following:

(a) Stakes: Sawn oak stakes 2 by 2-inch and eight (8) foot in length with one end sharpened to a point to allow efficient driven installation.

(b) Twine: Abrasion and rot resistant, No. 21, 187 pound tensile strength twisted nylon twine.

(c) Hardware Cloth: Forty-eight (48) inch wide, 8-mesh galvanized woven superior grade 27-gauge wire with nominal opening size of 0.108 inches.

(d) Hardware Cloth Zip Ties: Fourteen (14) inch long, 120 pound, UV black cable ties for posts and five (5) inch long, 50 pound, UV black cable ties for hardware cloth attachment to top tie wire

(e) Mylar Ribbon: One and one-half (1.5) inch wide mylar ribbon

(f) Bamboo Stakes: Eight (8) foot long stakes sufficiently slender to push into subgrade.

PART 3 - EXECUTION

3.1 ISLAND AND DIKE ZONE WOODY PLANTS

3.1.1 Workmanship

The Contractor shall complete all work in the best manner, so that the work as a whole is of uniform quality and appearance. The Contractor shall conform to the requirements specified herein.

3.1.2 Preparation

(a) Areas described and shown on the Contract Drawings shall be prepared for planting by deconsolidating the exposed grades if determined necessary by the COR.

(b) Subgrade shall be kept free of waste material and debris.

(c) The planting beds and pits shall be disked or rototilled to a depth of six (6) inches, and shall be free of other vegetation and greater than six (6) inch clods of dredged material.

(d) Apply fertilizer and mychorrizal inoculants at rate indicated on the Contract Drawings during planting operations.

3.1.3 Delivery

(a) Do not deliver plants to Poplar Island until site conditions are ready for planting and not in quantities that exceed one (1) weeks worth of installation.

(b) Deliver packaged fertilizer and mycorrhizal inoculant materials in original, unopened containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and storage.

(c) Plants shall be handled by the container housing or near the collar of the root mass. Plants are not to be handled by the upper trunks or by any limbs or foliage.

(d) Plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material. When transported by boat, plants shall be protected from salt water spray and saturation.

(e) Deliver wetland plants to the planting site after preparations for planting have been completed and plant immediately.

(f) If plant material is not used immediately, plants shall be protected from herbivores and drying while stored at the site. Plants shall be properly stored and secured within the appropriate tidal range until ready for planting.

(g) Contractor shall notify COR fourteen (14) calendar days in advance of delivery of all plant material.

(h) Remove unacceptable material immediately from work site for ultimate off-island disposal in accordance with all local, state and Federal

laws.

3.1.4 Inspection

No plant material shall be planted by the Contractor until inspected at the site of the work. Contractor shall provide sufficient notice and make plants available for inspection by the COR prior to planting. Plant material will be rejected if delivered with broken or damaged roots, or if damaged on site by rough handling. All rejected material shall be immediately removed from the site and replaced with acceptable material at no additional cost. Final inspection shall be made upon completion of the Contract.

3.1.5 Installation

3.1.5.1 Planting Operations

(a) Layout: All trees and shrubs shall be laid out in random and naturalistic arrangements, as shown on the Contract Drawings unless otherwise directed by the COR. All container plant locations shall be staked by the Contractor and reviewed by the COR prior to planting.

(b) Loosen subsoil to a depth of six (6) inches with rototiller or discer. The soil-loosening operation shall be conducted in such a way as to back its way out of the site. After this, no more heavy machinery shall be allowed on the planting beds.

(c) Below-Ground Obstructions: Remove any underground obstructions to the depth necessary to permit proper planting.

(d) Disposal: Remove and dispose of all unsuitable materials off-island at Contractor's cost. Excess excavations may be spread on site, graded so as to not pond water, but not to the extend that tidal elevations for the wetland plants are impacted.

(e) Plant Beds: All plant material shall be planted in existing on-site dredged material and sand mix.

(f) Plant Protection & Maintenance: Bare root material shall be adequately protected from drying out and immediately heeled in after inspection. The bundles of heeled-in plants shall be set upright on the ground, covered with mulch, and kept adequately moist with fresh water until the time of installation. Until the time of planting, all plant material shall be stored in an approved location and maintained, to the satisfaction of the COR, at no additional cost to the Government. All plants not planted immediately shall be watered as necessary to prevent wilting until planting.

(g) Setting Plants: Install plant stock in accordance with the plant details shown on the Contract Drawings. Contractor shall take care not to exert any pressure that will damage any portion of the plant.

(h) Surface Compaction: Dredged material mix shall be firmed by foot pressure around the base of all shrubs and trees. Avoid compacting the soil. Do not leave plants exposed to sun or wind prior to planting. Take special care to avoid desiccation of fibrous-rooted plants.

(i) Damages: The Contractor shall be liable for any damage to property caused by planting operations and the Contractor shall, without any additional cost, restore or replace to original or specified condition.

3.1.5.2 Planting Trees and Shrubs

(a) The Contractor shall properly sequence plant delivery to balance installation with available plant stock to minimize excess unplanted trees and shrubs in the work area.

(b) Tagging: All woody plants shall be tagged with a blue anodized aluminum tag each with a unique permanently stamped number. The tags shall be attached to a lateral limb using aluminum wire sufficiently loose enough to prevent limb damage yet secure enough to prevent tag loss. A field log shall be maintained that documents each number to the tagged species stock type, species name and installation date.

(c) Container: Cut containers on two (2) sides with an approved can cutter and remove plant from container. Set container grown stock as indicated in the plant details on the Contract Drawings. If container grown plant is root-bound or can be easily pulled from container, the plant shall be rejected. Place plant on a cushion of planting soil mixture and carefully work dredged material mix around roots by hand and puddle with fresh water until the dredged material mix layers are completely saturated.

(d) Tube stock: Plants shall be removed from tube entirely and without damage. Plugs shall have solid soil / root masses with the soil in place. Roots shall appear clean and white in coloration. If plug is root-bound or can easily be pulled from tube, the plant shall be rejected. Plug shall be installed in hole perpendicular with root collar even with the surrounding grades. Plant shall be firmed in to remove air pockets and then saturated with fresh water.

(e) Bare root: The roots of bare rooted plants shall be properly spread out and topsoil shall be carefully worked in among them. All broken or frayed roots shall be cleanly cut off with pruning shears. Care shall be taken to insure that root collar remains at same elevation as adjacent finished grade after allowing for settlement.

(f) Place fertilizer and mychorrizal inoculant at the rates and locations indicated on the Contract Drawings. Excess substrate shall be evenly distributed around the planting sites.

(g) Unless otherwise directed by the COR, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. The contractor shall use only approve pruning equipment by COR. Branches shall not be snapped off, twisted, bent and/or broken that would create splintering of the branch fibers.

3.1.6 Method of Work

Submit a list of proposed methods of execution of work under this section for review and approval by the COR when proposed methods are different from, or

supplementary to, those specified in the Contract Drawings.

3.1.7 Maintenance

(a) Maintenance shall extend from start of planting, and be continuous until planting is accepted by the COR. At this point, the two (2) year warranty period begins with maintenance responsibilities assumed by the Government. Plant material will not be accepted until healthy growth and satisfactory foliage conditions are determined by the COR.

(b) Maintenance shall include watering, weeding, cultivating, trimming, edging, pruning, removal of dead plant material, replacement of unhealthy plants and resetting where required.

(c) During maintenance period all plant material shall be protected from herbivores, insect pests and disease.

(d) When maintenance is taken over by the Government after final acceptance, the Contractor shall periodically inspect maintenance operations of the Government, and promptly report to the COR any methods, practices, or operations which the Contractor considers unsatisfactory, not in accord with the Contractor's interests, or not good horticultural practice. Failure of the Contractor to inspect and report shall be construed as an acceptance by the Contractor of the Government maintenance operations. The Contractor shall not claim thereafter that any defects developing later are results of such methods, practices, or operations.

3.1.8 Final Acceptance

Trees and shrubs must exhibit vigorous growth without any signs of physical damage, insect infestation or disease, be planted at the specified locations for container stock, and be at proper spacings for remaining stock. Mulch and erosion control fabric shall be installed as specified. All surrounding grades shall be uniform. All trees and shrubs shall be tagged with the field log submitted that includes the tag number, species name, stock type and installation date. Planting beds shall be free of invasive, nonnative, or non-specified plant species.

3.1.9 Final Cleanup

At time of final inspection of work, and before final acceptance, clean work area of all installation materials. Remove from Poplar Island construction equipment, excess materials and tools including any construction debris related to the planting activities. Dispose debris off-island, in accordance with all federal, state and local laws, and at the Contractor's expense.

3.2 TIDAL MARSH PLANTINGS

3.2.1 Workmanship

The Contractor shall complete all work in the best manner, so that the work as a whole is of uniform quality and appearance. The Contractor shall conform to the requirements specified herein.

3.2.2 Preparation

(a) Subgrade shall be kept free of waste material and debris.

(b) Remove stones over 1-1/2 inches in any dimension, as well as sticks, rubbish and other extraneous matter.

(c) The planting beds shall be worked up well, and shall be free of other vegetation and greater than six (6) inch clods of dredged material.

3.2.3 Delivery

(a) Do not deliver plants to Poplar Island until site conditions are ready for planting and not in quantities that exceed one (1) work week worth of installation.

(b) Deliver packaged fertilizer materials in original, unopened containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while in storage.

(c) Plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material. When transported by boat, plants shall be protected from salt water spray and saturation.

(d) Deliver wetland plants to the planting site after preparations for planting have been completed and plant immediately.

(e) If plant material is not used immediately, plants shall be protected from herbivores and drying while stored at the site. Plants shall be properly stored and secured within the appropriate tidal range until ready for planting.

(f) Contractor shall notify COR fourteen (14) calendar days in advance of delivery of all plant material.

(g) Remove unacceptable material immediately from project site.

3.2.4 Inspection

No plant material shall be planted by the Contractor until inspected at the site of the work. Contractor shall provide sufficient notice of delivery to the COR so the Government may do an inspection prior to planting. Plant material will be rejected if delivered with broken or damaged roots, or if damaged on site by rough handling. All rejected material shall be immediately removed from the site and replaced with acceptable material at no additional cost to the Government. Final inspection shall be made upon completion of the Contract.

3.2.5 Installation

(a) An auger shall be used to develop planting hole with bit slightly larger than peat pot or plug stock

(b) The depth of auger placement shall allow for easy plant placement to match the base of plant with the surrounding grade while limiting formation of air pockets beneath planting hole.

(c) Prior to placement of peat pot or plug, add fertilizer to bottom of planting hole in quantities and at the locations shown on the Contract Drawings.

(d) Insert plant in hole with root system oriented downward. While the plant is in this position, the soil profile shall be fully and firmly closed with an appropriate hand tool.

(e) Once the soil is closed, firm foot pressure shall be applied in several positions immediately adjacent to the plantings to ensure good soil and plant contact, and to remove any air pockets and voids.

(f) If a soil depression is formed above or immediately adjacent to the planting location, enough soil shall be sloughed from the surrounding area and firmly tamped, but not compacted, into the depression to leave the planting area at the same elevation as the surrounding soil or slightly higher.

3.2.6 Method of Work

Submit a list of proposed methods of execution of work under this section for review and approval by the COR when proposed methods are different from, or supplementary to, those specified in the Contract Drawings.

3.2.7 Maintenance

(a) Maintenance shall extend from start of planting, and be continuous until planting is accepted by the COR. At this point in time, the two (2) year warranty period begins. Plant material will not be accepted until healthy growth and satisfactory foliage conditions are determined by the COR.

(b) Maintenance shall include watering, weeding, cultivating, trimming, edging, pruning, removal of dead plant material, replacement of unhealthy plants and resetting where required.

(c) During maintenance period all plant material shall be protected from herbivores, insect pests and disease.

(d) When maintenance is taken over by the Government after final acceptance by the COR, The Contractor shall periodically inspect maintenance operations of the Government, and promptly report to the COR any methods, practices, or operations which the Contractor considers unsatisfactory, not in accord with the Contractor’s interests, or not good horticultural practice. Failure of the Contractor to inspect and report shall be construed

as an acceptance by the Contractor of the Government operations. The Contractor shall not claim thereafter that any defects developing later are results of such methods, practices, or operations.

3.2.8 Final Acceptance

(a) Tidal marsh plant material shall be evaluated for acceptance fourteen (14) days after all of the following have been completed or satisfied.

(1) The plant material has been installed to the satisfaction of the COR;

(2) Normal tide flows have been present for fourteen (14) days;

(3) All specified exclosure fencing has been installed and accepted adjacent to the planting areas;

(4) No compensation shall be made for the installation or the cost of the material for plants not properly planted, including those plants whose roots are exposed at the time of acceptance or those plants subject to desiccation.

(b) Until final acceptance, the Contractor shall be responsible for ensuring the planting areas are kept moist or under tidal influence as specified in the Contract Drawings. Plant materials determined to be dead or seriously weakened shall not be accepted, with the exceptions noted herein. If all exclosure fencing have been installed on time and as specified and identified on the plans, as solely determined by the COR, those plants absent or damaged via herbivory shall be credited for acceptance. Plants absent for reasons other than herbivory shall not be accepted. If all exclosure fencing was not initially installed on time and as specified, all absent or seriously damaged plant materials including those damaged or lost to herbivory, as solely determined by the COR, shall not be accepted.

(c) Except as indicated in the previous paragraph, plant materials found dead, absent, seriously damaged, weakened or desiccated, floating on the water surface, deposited along the edge of the wetland, exposed on soil, or within the water column shall be replanted with peat pot stock satisfying the material specification at no additional cost to the Government and at the expense to the Contractor. If new materials are required to achieve the planting densities specified on the Contract Drawing they shall be acquired and installed by the Contractor at no additional cost.

3.2.9 Final Cleanup

At time of final inspection of work, and before final acceptance, clean work area of all installation materials. Remove from Poplar Island construction equipment, excess materials and tools including any construction debris related to the planting activities. Dispose debris off-island, in accordance with all local, state and Federal laws, and at the Contractor’s expense.

3.3 SMOOTH CORDGRASS (*SPARTINA ALTERNIFLORA*) SEEDING

(a) Seeds shall be fresh, free of deleterious material and disease and delivered to the site in closed five (5) gallon containers during delivery and until time of sowing shall be stored at room temperature. A certified net weight, date of germination tests, supplier's name and certified guarantee of analysis including purity and germination percentages shall be shown clearly on each storage container.

(b) Seed materials shall be inspected by the Contractor upon arrival at the job site and prior to planting. Any materials not in compliance with specifications shall not be accepted and shall be removed from the job site immediately.

(c) All areas shown to receive seed are shown on the Contract Drawings.

(d) Seedbed Preparation: Scarify all compacted areas and remove all debris and obstacles.

(e) Do not broadcast seed by mechanical application when the wind velocity is such as to prevent uniform seed distribution.

(f) Seed at a rate of 10 pure live seed (pls) per square foot with sand filler. Seed purity and germination test results for each seed batch shall be submitted to the COR for approval prior to sowing.

(g) Time of Seeding: Seeding shall be performed between April 15 and May 31.

(h) Method of Seeding: Seed shall be thoroughly mixed in a sand filler and hand broadcast to provide a uniform coverage of ten (10) PLS per square foot.

3.4 EXCLOSURE FENCING

3.4.1 Workmanship

The Contractor shall complete all work in the best manner, so that the work as a whole is of uniform quality and appearance. The Contractor shall conform to the requirements specified herein.

3.4.2 Preparation

Subgrade shall be kept free of waste material and debris. Remove all stones over 1-1/2 inches in any dimension, as well as sticks, rubbish and other extraneous matter.

3.4.3 Delivery

Deliver materials in original packaging in the quantities required to construct the fencing to as shown in the Contract Drawings.

3.4.4 Inspection

Inspection by the Contractor shall occur during the exclosure fencing installation.

3.4.5 Installation: The Contractor install the exclosure fencing as shown on the Contract Drawings.

3.4.6 Method of Work

Exclosure fencing along the channel edge shall be installed prior to tidal marsh planting. Remaining exclosure fencing to be constructed each day following tidal marsh planting. Seed exclosure fencing to be erected following sowing activities.

3.4.7 Maintenance

Contractor shall maintain exclosure fencing until final acceptance by the COR that initiates the two (2) year warranty period. The Government shall maintain exclosure fencing during the warranty period. The exclosure fencing shall be maintained to satisfy the Contract Drawings and specifications.

3.4.8 Final Acceptance

Upon completion of all or an agreed upon section of exclosure fencing, the Contractor and COR shall jointly inspect the fencing for compliance to the Contract Drawing requirements. Any unsatisfactory areas, as solely determined by the COR, shall be repaired or replaced by the Contractor at no additional expense to the Government.

3.4.9 Final Cleanup

At time of final inspection of work, and before final acceptance, clean work area of all installation materials. Remove from Poplar Island construction equipment, excess materials and tools including any construction debris related to the exclosure fence activities. Dispose debris off-island, in accordance with all local laws, and at the Contractor's expense.

-- End of Section --